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Bulletin of the

# ENTOMOLOGICAL SOCIETY OF AMERICA

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ENTOMOLOGICAL SOCIETY OF AMERICA

Formed in 1953 by Consolidation of the
American Association of Economic Entomologists
(1889-1952)
and the former
Entomological Society of America (1906-1952)

VOLUME 2 **JUNE-1956** NUMBER 2

**BULLETIN**
**of the**
**ENTOMOLOGICAL SOCIETY OF AMERICA**

**Published by**
**ENTOMOLOGICAL SOCIETY OF AMERICA**

**R. H. Nelson, Editor**
**1530 P Street, N.W., Washington 5, D. C.**

**ADams 4-1110**

Issued quarterly on the 15th of March, June, September and December, in the interest of professional entomology.

Terms of subscription: Non-member $5.00 per year payable in advance. Single copies $1.25. Address all inquires to the Society at the address given above.

Second-class mail privileges authorized at Washington, D. C.

Printed by TYPEMASTERS INC.
Washington, D. C., U.S.A.

## SUSTAINING ASSOCIATES

Since our last issue a list of the Sustaining Associates of this Society has appeared on the inside back cover of the March ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA and the April JOURNAL OF ECONOMIC ENTOMOLOGY. It was a pleasant duty to publish these lists since our Sustaining Associates are making real contributions to the advancement of entomology. We hope the listings will prove of value to the companies concerned.

At this time we wish to welcome a new Sustaining Associate for 1956.

The Gardening Council, Newark, New York.

The following firms, who were Sustaining Associates in 1955, have renewed their Associateships for 1956 since the March BULLETIN was published.

General Chemical Division, Allied Chemical and Dye Corporation, 40 Rector Street, New York 6, New York
Gulf Oil Corp.-Gulf Refining Co., Gulf Building, Pittsburgh 30, Pennsylvania
Shell Chemical Corporation, Agricultural Chemical Sales Division, 460 Park Avenue, New York 22, New York
Union Carbide & Carbon Corporation, 32 East 42nd Street, New York 17, New York
Velsicol Chemical Corporation, 330 East Grand Avenue, Chicago 11, Illinois.

*Sustaining Associate Committees* are now set up in the five Branches of the Society. The Chairmen of the Committees are:

COTTON STATES. Clyde F. Smith, College Station, Raleigh, N. C.
EASTERN. Ralph E. Heal, National Pest Control Association, Inc., 30 Church Street, New York 7, New York
NORTH CENTRAL. Albert W. Buzicky, University Farm, St. Paul, Minnesota
PACIFIC. T. Roy Hansberry, Shell Development Co., P.O. Box 1531, Modesto, California.
SOUTHWESTERN. Ernest W. Laake, 9514 Ash Creek Drive, Dallas 28, Texas

Complete committee membership for all Branches is not available at this time. These committee chairmen will appreciate the help and suggestions of all members in their Branch areas.

## AUTOGRAPHA O O

ANNUAL MEETING. Your attention is called to Program Highlights on page 5. The 4th annual meeting is to be held in New York, December 27-30, 1956. Please note the following:

**DEADLINE FOR RECEIPT OF TITLES AND ABSTRACTS SEPTEMBER 1, 1956.**

PACIFIC BRANCH MEETING. This Branch meeting in Berkeley on June 26-28 will be under way about the time this issue of the BULLETIN is received. We know that they will enjoy their usual excellent program and the writer regrets that he will not be present.

RETIREMENTS. The retirements of three outstanding members of this Society have come to our attention. These are E. N. Cory, J. J. Davis, and H. B. Hungerford. The service records of these eminent entomologists, to the profession and to this Society, are widely known and appreciated. To each is extended the best wishes of the Society with the hope that we may have their continued counsel.

SECTION REPRESENTATIVES. Members of Section D and Section E elect Representatives to the Governing Board this year. Mail ballots will be sent to all who have registered preferences for these Sections. The persons elected will take office at the end of the 1956 Annual Meeting and serve for three years.

THOMAS SAY FOUNDATION. A supply of Volume II, *Plecoptera or Stoneflies of North America* by J. G. Needham and P. W. Claassen has recently been located. This makes five volumes, all that have been published by the Foundation, available. Copies of Volume II sell for $5.00 postpaid in North America and U. S. Possessions and for $5.50 elsewhere.

PUBLICATION DATES. We continue to press the printers to get the ANNALS and the JOURNAL out on time. With the grace of the gods and a fast outfield we may someday succeed.

## MEETINGS

ROANOKE, VIRGINIA. Patrick Henry Hotel. June 20-21, 1956. Annual Program of the Joint Committee on Grassland Farming. Prof. J. F. Shoulders, Virginia Agricultural Extension Service, Blacksburg, Va.

GOULD, COLORADO. Cameron Pass 4-H Club Camp, August 5-9, 1956. The Thirty-Seventh Annual Rocky Mountain Conference of Entomologists. Gordon T. Mickle, Extension Entomologist, Colorado A. & M. College, Fort Collins, Colorado.

MONTREAL, CANADA. McGill University, August 17-20, 1956 and University of Montreal, August 22-25, 1956. Tenth International Congress of Entomology. J. A. Downes, Secretary, Science Service Building, Ottawa, Ontario, Canada. See Page 8.

TALLAHASSEE, FLORIDA. Floridian Hotel, August 30-31, 1956. The Thirty-Ninth Annual Meeting of the Florida Entomological Society. R. O. Kirkland, Secretary, P.O. Box 2425, University Station, Gainesville, Florida.

NEW YORK, NEW YORK. Hotel New Yorker, December 27-30, 1956. Fourth Annual Meeting of the Entomological Society of America. In connection with the 123rd meeting of the American Association for the Advancement of Science. See Page 5.

HAMBURG, GERMANY. September 8-15, 1957. IVth International Congress of Crop Protection. Advance notice. Dr. Harold Richter, President, Biologische Bundesanstalt fur Land- und Forstwirtschaft, Messeweg 11-12, Braunschweig, American Zone, Germany.

# Shall We Wait Another Hundred Years?

C. R. JORDAN, *Extension Entomologist—Project Leader*
Agricultural Extension Service, University of Georgia, Athens[1]

Entomologists in this country celebrated the centennial of professional entomology in 1954. An excellent public relations program was conducted to acquaint the general public with the importance of our profession and the contributions which the profession has made to the general welfare of our people. The fact that the American Public Relations Association recognized the centennial information program with one of their highest awards attests to the effectiveness of the centennial celebration.

The success of our efforts in this regard certainly proves that we have the talent and ability within our profession to do a good job in the field of public relations if, and when, we are properly motivated. It disturbs me, however, to wonder if we shall wait another hundred years to arouse from our relative complacency and direct a concerted effort toward developing a greater appreciation of entomology in the general public.

D. G. Hall, Chairman of the Centennial Committee, in accepting the aforementioned award, stated that success in the "man versus insect battle" depends upon public understanding of the menace insects present, and active participation in their control by the public. Dr. Hall said, "I regard the award only as a measure of the effectiveness in this program but real progress against our insect enemies depends upon how well entomologists build upon this beginning toward greater public understanding and concern about their insect enemies."

These statements by Dr. Hall effectively express the idea that I am attempting to bring to the attention of this Society. We, as a profession, should be making a constant and concerted effort in the field of public relations. The Georgia Entomological Society has never had a public relations committee. The Entomological Society of America does not have a permanent committee charged with the responsibility of public relations work. This fact in itself is amazing when we stop to consider the time, effort and expense devoted to this type of work by industry and by other professional organizations. We are greatly concerned with keeping our membership well posted on our activities and accomplishments. This is as it should be but we are completely ignoring the need for keeping the general public well informed!

The word entomology does not exist in the vocabulary of the average person. Suppose we went out on the streets of Savannah, or any other city or town in the Nation, and asked each person whom we met, "Do you know what an entomologist is?" What kind of answers would we receive? Possibly one out of ten people would have an idea what an entomologist is and what he does. As R. H. Nelson, Executive Secretary of the Entomological Society of America, stated in a personal communication: "I get a little weary of people looking blank at the mention of the word entomologist but reacting knowingly to the no less polysyllabic terms of psychiatrist or pediatrician."

It is a well established fact that insect control is a necessary phase in the efficient production of most food and fiber. If insects were not controlled, it is estimated that they would take at least half of the average production of the U. S. acre. We are all aware of the tremendous contributions which entomologists have made in the field of public health. Several years ago Dr. E. F. Knipling estimated that the use of DDT since 1942 had saved 5,000,000 lives and prevented 100,000,000 illnesses by controlling malaria, typhus and dysentary. Since the majority of entomologists are employed by tax supported agencies, would it not be wise for us to exert every effort to see that the general public is kept well informed of our accomplishments? Actually, we owe it to the people to let them know how this portion of their tax money is spent.

The U. S. Forest Service has stated that insects cause an annual timber loss 7 times greater than that caused by fire. As you travelled to Savannah, did you notice the signs beside the highways, "Prevent Forest Fires"? How many did you see that suggested, "Control Forest Insects"? There are 139 county forest rangers in Georgia who are primarily charged with fire prevention and control. How many county forest entomologists do we have in Georgia? You know the answer to this question. We have only one tax-supported entomologist in the entire state who is primarily concerned with forest insect problems.

I do not wish to detract from or minimize the importance of preventing forest fires. We all appreciate their great destructiveness. Perhaps the reason that we do is because the agencies concerned with fire prevention and control recognize the importance of public relations and utilize this great tool with maximum effectiveness.

We have estimated that the annual loss to insects in Georgia averages $100,000,000 or more. It is believed that this estimate is conservative. County agents across the nation report that of the requests for information which they receive during the growing season, 36 per cent concern insects and their control. Isn't it odd, then, that entomology teaching, research and extension staffs in most of our state colleges and universities are traditionally low on the totem pole of personnel and support?

Dr. Seaman A. Knapp is credited with being the father of the Agricultural Extension Service. His classic demonstration in Texas in 1903, concerned with reducing boll weevil damage to cotton, is considered to be the beginning of Extension work in this country. It seems rather ironic, in view of this fact, that several states still do not have an Extension entomologist and most others are poorly staffed in entomology when compared to agronomy, horticulture, animal husbandry, economics and other subject matter specialties.

I cannot help but believe that a good public relations program over the years would have done much to place the profession of entomology in a more enviable position than it now occupies.

Many of the things that can be done in the field of public relations would necessitate action on a national level. Others could be approached on the state or area level. Many would require the expenditure of considerable sums of money. Some would call for much effort but little money. There is one thing, however, that we as individuals can do with little effort and no funds. We can take advantage of every opportunity to inform other individuals and groups of what the word entomology means and to acquaint them with some of the contributions which the profession has made to the welfare of mankind. If each of us could remember to do this one thing, it would greatly improve the position which we now occupy in the public eye.

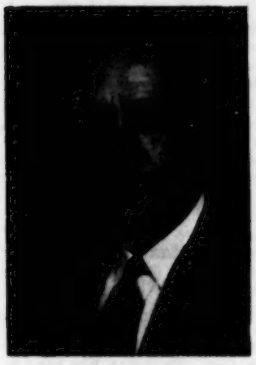
Good public relations is not an end within itself. It is a *means* towards the goal of a better understood, more widely appreciated profession; a profession which can offer its members and prospective members more personal prestige and a greater reward for their efforts.

[1] Presidential Address—Georgia Entomological Society, March 8, 1956. Savannah, and Invitational Address, South Carolina Entomological Society, March 29, 1956. Columbia.

# RECENT DEVELOPMENTS IN CONTROL OF FOREST INSECTS[1]

By JAMES A. BEAL[2]

I am pleased to have this opportunity to discuss with you briefly some recent advances which have been made in the control of forest insects. We in the Forest Service feel that considerable progress has been made in this difficult field, especially since World War II. Later on I shall mention certain achievements which I believe represent real advancement. I shall also have something to say about the magnitude of the forest insect problem in this country. Considering the losses which I shall bring to your attention, it may be that some of you will conclude that our so-called advances are more fancied than real. Admittedly, forest insect-caused losses are high—possibly they have been at an all-time high during the past few years. It is unfortunate, but true, that this has occurred in spite of some rather outstanding achievements in research during the period. We believe that they would have been considerably greater in the absence of such progress as has been made.



JAMES A. BEAL

In a recent review of the Nation's timber resources made by the Forest Service in collaboration with State forestry organizations and many other forestry groups, it is shown that insects rank first among the causes of timber mortality. As a matter of fact, in terms of trees killed, insects are responsible for 28 percent of the mortality of all timber large enough for commercial use. Insects are even more of a problem when it comes to the larger trees, of sawtimber size. In this size timber they are responsible for 40 percent of the mortality. At this rate of destruction, they outrank disease by a ratio of 2 to 1, and fire by a ratio of 7 to 1. In 1952, a fairly typical year, it is estimated that insects killed about 6 billion board-feet of sawtimber. This includes catastrophic losses resulting from widespread epidemics which, over the past 50 years, have averaged more than 1 billion board-feet annually.

In addition to the sawtimber killed by insects, there is an estimated loss in pole-size timber of more than 2 million cords annually.

It is rather difficult, if not impossible, for most of us to visualize what is meant by 6 billion board-feet of timber or 2 million cords of pulpwood. It might help if we realize that in loss of sawtimber, it represents enough lumber to build 600,000 homes, or half the number that were constructed in the United States last year. In pulpwood, it represents one-fourth the amount of pulpwood consumed each year in the manufacture of this country's newsprint.

Insects also affect forests in ways other than the killing of commercial timber. They exert a serious impact on future commercial forests by killing or damaging trees of seedling and sapling size, by retarding the growth rate, and by causing deformities and defects in living trees. They are also capable of seriously impairing wildlife habitats, watersheds, scenic and recreational areas and of changing the composition of forest stands from choice to inferior species. The extent of such damage is unknown as no attempt has ever been made to evaluate it.

When forest insect-caused losses are computed on a National basis, the figures are impressive to all of us. They are even more impressive, however, to the individual owner or forest manager when they are computed for his particular holdings. It is at this point that serious interest develops in the control of forest insects and information is eagerly sought on the best materials and methods for holding them in check.

### Changing Attitudes

It was not too long ago when many foresters had the feeling that forest insect losses were inevitable and that little or nothing could be done about most of them. This attitude no longer prevails, and the change in thinking represents one of the most important recent advances in forest insect control. Several factors have contributed to bring about this change in attitude. Among these are: (1) a better understanding of the magnitude of forest insect-caused losses; (2) improvements in survey techniques, which provide earlier detection and more accurate appraisals of existing outbreaks; (3) development of more efficient and more effective control methods for many species; and, above all, (4) the increased value of existing timber supplies.

The desire to get on top of the forest insect problem has been reflected through increased attention during the past few years to this subject by industry and Government alike. The Federal Government, because of its responsibility in protecting the timber on the National Forests and other public lands, and its role in advising private citizens and industry on forest insect control, has substantially increased its efforts both in forest insect research and forest insect surveys. Many of the State forestry offices have added forest entomologists to their staffs and some have formed survey organizations in an effort to keep abreast of insect conditions within their states. An ever-increasing number of private forestry companies are seeking the services of trained forest entomologists; a few to conduct research, but more often for the purpose of directing surveys and control on company-owned lands. Some states, as well as some timber companies, are cooperating on the aerial surveys by providing planes, pilots and observers to work with Federal personnel. In addition, forest pest control action committees have been formed in many parts of the country for the purpose of stimulating concerted action by all timberland owners in forest pest control. The formation of these committees is resulting in closer cooperation and coordination between Federal, State, and private organizations in the field of pest control.

### Surveys

Insect infestations must be detected and accurately located before control programs can be undertaken. This is far from a simple operation in the widespread forested areas of this country. Therefore, it seems appropriate to mention here a few advances that have been made in forest insect surveys. Perhaps the most outstanding of these have been in connection with aerial surveys. Aerial observations of forested areas in small single-engine airplanes have reduced the cost of locating infestations and permitted access to remote areas. The application of

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[1]Presented at the North Central States Branch meeting of the Entomological Society of America at Purdue University, March 28, 1956.

[2]Chief, Division of Forest Insect Research, Forest Service, U. S. Department of Agriculture.

aerial survey techniques on a random sampling basis provided adequate detection at the rate of 84,000 acres per hour of flight time. A satisfactory appraisal of tree-killing caused by bark beetles by a line-strip visual survey can be made at the rate of about 400,000 acres per hour of flight time. Using this method, vast areas can be surveyed at a cost of only 11 cents per 1,000 acres.

In photographing forest plots from the air to record insect losses, color film is proving far superior to other types of film. As aids to aerial observers, face masks of amber plastic shields greatly improve the detection of red and brown colors, and a small compact map-roller has simplified the job of handling the maps in the confined space of the cockpit. In addition, a small portable light table has been developed for field use in stereoptic examination of color photos.

### Aerial Spraying

Among the more important advances in the control of certain forest defoliators has been the use of the airplane for the distribution of concentrated sprays such as DDT from the air. Aerial spraying is so commonplace today that few entomologists are likely to consider it a recent development. I should like to remind you, however, that the first large-scale aerial spraying project in this country was conducted against the Douglas-fir tussock moth in Idaho in 1947, less than 10 years ago. Prior to that undertaking, only a very limited amount of research and development has been done on forest aerial spraying, and DDT had been tested only against the gypsy moth. Little was known about proper dosage, formulation, atomization, or application, or how it would affect other forms of life. Furthermore, there were no existing guide lines for operational procedure.

Since 1947, research has filled many of the gaps in our knowledge concerning aerial spraying and many improvements have been made. Today, as a result, aerial spraying to control many forest insects is widely practiced in both the United States and Canada. As a matter of fact, approximately 11 million acres of spruce budworm infested forests have been treated from the air in the United States and Canada during recent years. Outbreaks of the hemlock looper, white pine butterfly, the pine looper, forest tent caterpillar, Saratoga spittlebug, the walkingstick, some sawflies and other defoliators have also been controlled by aerial spraying. In addition, hundreds of thousands of acres have been treated to control or prevent the spread of the gypsy moth.

### Ground Spraying

Benzene hexachloride, another of the new insecticides, is being widely used in the control of some forest insects, particularly in the South. It has greatly increased the possibilities of preventing damage to logs, lumber, and pulpwood by wood boring insects. A benzene hexachloride solution, when sprayed onto freshly cut logs, keeps them relatively free from attack by bark beetles and borers for a period of 3 to 4 months during the period of greatest beetle activity. It can also be used to spray green stacks of lumber to prevent attack by ambrosia beetles. Benzene hexachloride is proving useful not only for controlling insects which attack trees after they are cut, but also for the control of certain beetles which attack standing trees. For example, it is being used on an increasing scale to control and prevent turpentine beetle attacks on seed trees left after cutting, and on gum producing pines in turpentine orchards. In addition, this chemical has been found to be highly effective as a residual spray against the southern pine beetle. In this work the infested trees are felled and the unsalvaged portions are sprayed. The emerging beetles are killed as they individually gnaw their way through the outer bark.

Ethylene dibromide is another chemical that is largely replacing older insecticides in the control of certain bark beetles. Ethylene dibromide emulsions were first used successfully in control of the Engelmann spruce beetle. Dosages, formulations, methods of application, and uses were developed. The habit of the Engelmann spruce beetle in concentrating its attack on the lower portion of the trunk led to the successful use of stirrup pumps and the spraying of standing trees for control of this pest of spruce in Colorado. The abundance of water in the control areas, and its place in the emulsion, greatly reduced the cost of transporting the insecticide, since it was necessary to haul only a small quantity of the concentrate to the job. Ethylene dibromide has since been used to control other bark beetles.

### Silvicultural Control

Studies were initiated in the West several years ago to determine and define the characteristics of trees that were susceptible to attack by bark beetles. These studies resulted in a new advancement in control and they are continuing to pay off in terms of new information and wider application of their results in control practices. For example, sanitation-salvage logging is now widely used as a method of control of the western pine beetle. This method, which involves the selective removal from the stand of trees that are in such poor current health that they are highly susceptible to this beetle, has proved successful beyond expectations. Through the cutting of trees of immediate risk to beetle attack, or only about 15 to 20 percent of the merchantable green stand volume, pine mortality has been reduced by 71 percent for a period of 10 years. In other areas, treated from six to nine years ago, losses have been reduced by 87 percent. The average reduction in loss represents a savings in pine volume of approximately 476 board feet per acre over the period of the cutting. Sanitation-salvage logging as a means of reducing bark beetle losses is being extended as rapidly as possible to additional pine stands in the West.

It appears likely that the use of hybrid trees or insect resistant strains may also have an important place in preventing damage by certain forest insects. It is now known, for example, that the pine reproduction weevil, a serious pest of planted Jeffrey and ponderosa pines in California brushfield areas, will not survive in the Jeffrey-Coulter pine hybrid developed by the Institute of Forest Genetics. Certain strains of ponderosa pine, moreover, have shown equally good resistance to the reproduction weevil.

With increased emphasis on forest tree genetics and additional knowledge on what constitutes resistance to insects, we can expect further advances in this phase of silvicultural control.

### Biological Control

It has long been recognized that parasites, predators, and diseases play an important role in the indirect control of forest insects. It is only recently, however, that it became possible to manipulate one of these natural control factors so that it could be used to replace other direct control methods. One of the most successful developments in biological control of a forest pest is the use of a virus disease organism to control the introduced European pine sawfly. Research workers in Canada first isolated and cultured this virus. It has since been thoroughly tested against this species where applied by both ground and aerial spraying equipment and, in general, has been found to be highly effective. A water suspension of the virus is made from the bodies of diseased larvae. It persists in treated plantations and infects subsequent sawfly populations. It also has the advantage of being highly specific to the European pine sawfly. In addition to its use in Canada, this virus disease has been used recently in

Connecticut, New Jersey, Ohio, and Illinois in cooperative tests to control European pine sawfly infestations in red pine plantations.

In recent tests conducted jointly by Agricultural Research Service and the Forest Service, the Virginia pine sawfly, a pest of pines in the eastern and central states, was controlled in localized areas with a spray made from a native virus disease.

In 1953, the most important single factor in controlling an outbreak of the white fir sawfly in California was a polyhedrosis-type virus isolated and identified by the Department of Biological Control, University of California. This virus became evident among the 4th and 5th instar larvae in mid-July, and within 10 days caused mortality in excess of 90 percent throughout the entire population.

Since this type of mortality has been noted in numerous other forest insect epidemics, it appears highly probable that further work in this direction will uncover additional diseases that can be cultured and used directly against additional specific forest insect populations.

Although no such spectacular use has yet been made of parasites and predators, they may well be equally important. In any event, it is probable that many control projects could be delayed or eliminated if we but had complete enough information on the parasite-host relationship. The possibilities of this was amply demonstrated recently in connection with an epidemic of the spruce budworm in Maine. Entomologists had been keeping track of the parasites in the infestation for several years prior to the development of epidemic conditions. Through application of the knowledge gained during these studies on the distribution, abundance, and identity of parasites throughout the infested area, it was possible to limit the control effort to a single spraying of one 20,000-acre area. There is little doubt but that much larger acreages would have been treated had we not known precisely what the parasites were doing in the epidemic.

It is also worthy of note that the same type of information on the parasite-budworm relationship has been a major factor in the decision against control next year of a 550 thousand acre epidemic of the spruce budworm in Oregon. Thus, it is evident that parasites can often be used to good advantage in control programs when enough information is available on their year-to-year activities in specific outbreaks. The cost of such vigilance is but a fraction of the cost of a single large spraying project.

### Management Control

There is another broad aspect of forest insect control, and though it may include some of the methods already mentioned, it is worthy of special attention. I refer to the current management practices that are directed toward keeping insect losses at a minimum, and these include a wide variety of ways of doing the job.

Logging as a means of controlling many species of bark beetles is being practiced on a scale that was not anticipated 10 years ago. This has resulted from increased timber values and the development of more effective logging equipment. In numerous instances the most carefully prepared management plans are being ignored or drastically changed in order to salvage beetle-killed timber and to remove the infested trees from the forests in order to prevent further losses. Literally thousands of miles of access roads and secondary feeder roads are being built for the purpose of better coping with beetle epidemics. Logging equipment is being adapted for this special use and small units organized to salvage-log small groups or even single infested trees before the beetles can emerge from them. Control through logging is being supplemented in most instances by chemical treatment of infested portions or cull trees that are left in the woods.

Salvage-logging of infested trees is an effective and feasible method of western pine beetle control where conditions are favorable for the rapid removal of light volumes. An infestation of this sort was controlled on a 6,000-acre area on the Lassen National Forest by this method. The volume of infested trees logged out averaged 177 board feet per acre. Sale of the infested stumpage plus salvable timber resulted in a net cash return of $14,000.

On an Engelmann spruce beetle control project in Montana, most of the emphasis is placed on logging but in some areas the beetles are concentrated by felling trap trees in strategic locations in early summer. During flight the beetles are attracted to these in excessive numbers and the broods are later removed with the logs.

Many of the management practices outlined above are being used by both the Federal Government and private industry in their attempts to cope with the Engelmann spruce beetle in the Rocky Mountain states, the western pine beetle and the Douglas-fir beetle in the Pacific Northwest, and the southern pine beetle and other bark beetles in the South.

### Summary

By way of summation, it can be said that good progress has been made in several phases of forest insect control. Methods of detection are being improved and cheapened. Important advances have been made in the use of chemicals and their application. The practice of silvicultural control has been amply demonstrated and is being expanded. Biological control is assuming a more important role and additional ways of increasing its effectiveness are being investigated. Intensified management practices are rapidly making forest insect control the job of every practicing forester. And lastly, greater interest in keeping forest insect losses at a minimum are resulting in more concerted action and better over-all coordination of pest control.

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## Uses of Isotopes in Agricultural Studies

This is the title of a chapter appearing in *Isotopes . . . An Eight Year Summary of U. S. Distribution and Utilization* prepared by the U. S. Atomic Energy Commission. The book is available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for $2.00. In the Agricultural Studies chapter there is a section on Insect Studies which should be of interest to entomologists working in the various fields where gamma rays or tracer studies are underway or contemplated.

## Guggenheim Fellowship Awards

Fellowship awards for 1956 totalling more than $1,100,000.00 were granted to 275 scholars and artists by the John Guggenheim Memorial Foundation. The announcement of awards to scientists released on April 30, 1956 noted four grants which are of interest to entomologists. These were to Dr. Herbert Friedmann, Curator of Birds, Smithsonian Institution, Washington, D. C.: *Studies of digestion of beeswax by the honey-guide birds, with special reference to the biochemistry of the splitting of wax;* Dr. Huai Chiang, Assistant Professor of Zoology, University of Minnesota, Duluth Branch: *Studies of ecological and physiological aspects of the dispersal of insects;* Mr. Kanjyo Sakimura, Associate Entomologist, Pineapple Research Institute, Honolulu, Hawaii: *Studies on the transmission of plant virus diseases by thrips,* and Dr. Philip J. Darlington, Jr., Curator of Insects, Museum of Comparative Zoology, Harvard University: *Studies of the Australian carabid beetles.*

Dr. Chiang, Mr. Sakimura and Dr. Darlington are members of this Society. We wish to extend our congratulations.

## PROGRAM HIGHLIGHTS

### 4TH ANNUAL MEETING ENTOMOLOGICAL SOCIETY OF AMERICA

### Hotel New Yorker, New York, N. Y., December 27-30, 1956

The program for the Fourth Annual Meeting of the Society will follow the traditional pattern so far as the main features are concerned, with minor adjustments to adapt the meeting to the Thursday through Sunday schedule.

In planning the main features of the general program, an effort has been made to choose topics not particularly emphasized in the program of the Tenth International Congress of Entomology to be held in August. Included in the general program for the Society's December meeting will be a symposium on insect attractants, an invitational paper on insect flight, and the address of President Porter.

Section C, subsection c, Relation of Insects to Plant Diseases, plans a visit to the Rockefeller Institute laboratory where basic work on insect transmission of plant viruses is carried on by Drs. Kunkel, Maramorosch and associates. This subsection also has an invitational paper on "Relationships between Viruses and their Insect Vectors."

Section D, as usual, has lined up excellent speakers to lead off their sessions with invitational papers. The two subjects to be discussed are "Insect Endocrinology and Tissue Culture," and "The Status of Yellow Fever in the Americas."

The usual fine lot of submitted papers is expected. Titles and abstracts should be sent to P. W. Oman, Entomology Research Branch, Beltsville, Maryland, BEFORE SEPTEMBER 1. The 4th Annual Meeting promises to be an excellent one, so make your plans now to attend. Remember, if you don't like the program, there are plenty of other attractions in New York—the AAAS Annual Meeting, for example.

#### In Brief

Fourth Annual Meeting, Entomological Society of America. In conjunction with the American Association for the Advancement of Science. Hotel New Yorker, New York City, December 27-30, 1956. Chairman, Local Arrangements Committee, Dr. R. E. Heal, 535 Madison Ave., Elizabeth, New Jersey.

Program will be published in the September issue of the BULLETIN. Gratis copies will also be available at the meeting.

DEADLINE FOR RECEIPT OF TITLES AND ABSTRACTS, SEPTEMBER 1, 1956. SEND TO DR. P. W. OMAN, CHAIRMAN PROGRAM COMMITTEE.

## Insect Rearing

### NORTH CENTRAL BRANCH PAPERS

Reprints of four papers on insect rearing are available for sale. These papers were presented at the Insect Collecting, Rearing and Curating Section, Eleventh Annual Conference of the North Central Branch meeting of the Entomological Society of America, held at Purdue University, March 28-30, 1956. The following papers are available:

The Rearing of Clover Mites
By Robert Snetsinger, Ill. Nat. History Survey, pp. 8

Laboratory Rearing Procedures for *Aedes aegypti* and *Culex pipiens*
By Elden G. Burcham, Arden O. Lea, John B. Dimond, The Ohio State University, pp. 7

The Rearing of Subterranean Termites
By John V. Osmun, University of Illinois, pp. 3

Rearing the Armyworm, *Pseudaletia unipuncta*
By Ronald H. Meyer, University of Illinois, pp. 3

The papers are printed on Ozalid paper and a charge of 40 cents in coin is made for a set of the four papers.

It is expected that other papers will be added to the listing on an annual basis after presentation at the North Central Branch meetings. Orders, together with remittance, should be made to:

Wisconsin Alumni Research Foundation
Insecticide Testing Laboratory
506 North Walnut St.—Box 2217
Madison, Wisconsin
Attention: G. S. Kido

## Trinadad Ryania Corporation

The Trinidad Ryania Corporation of Upper Montclair, N. J., has been established to promote the use of ryania insecticides. Dr. Donald F. Starr, a consultant on insecticides and member of this Society, is their representative in this country.

Ryania insecticides have been tested on this continent since 1945 and during that time it has been used successfully for the control of European cornborer, sugarcane borer, cranberry fruitworm, codling moth on apples, and chlordane-resistant cockroaches. During this same period, a host of other insecticides have been announced, but ryania has important advantages. It controls the pests without destroying our insect allies such as the predators and parasites. After controlling the pests, no hazardous insecticide residues remain on the crop.

The program of the Trinidad Ryania Corporation includes the systematic harvesting of the ryania crop in Trinidad, and increased availability and use of ryania insecticides. During the first few years that commercial quantities of ryania were taken from Trinidad there were no regulations regarding the cutting of the shrubs, and it was feared that without proper supervision the future crops would be jeopardized just as in the United States there was a time that haphazard timbering threatened our supply of lumber. The Trinidad Ryania Corporation will obtain its supply from people licensed to cut ryania on the government lands in Trinidad which represents approximately 98 per cent of the total supply from Trinidad.

# NATIONAL SCIENCE FOUNDATION GRANTS FOR RESEARCH ON INSECTS AND RELATED ARTHROPODS

Because some entomologists are not familiar with the activities of the relatively new National Science Foundation and do not know what kinds of entomological research have been supported by the Foundation, it was thought that it might be informative and helpful to the readers of the BULLETIN to list here the grants that have been made by the Foundation for entomological research from the beginning in fiscal year 1952 until the middle of fiscal year 1956. The items in the following list were selected from the published reports of the Foundation. All titles that were obviously concerned with research on insects or related arthropods are included, but the list is not necessarily complete. Two grants for entomological publications are included.

The list shows that more than a half-million dollars has been granted by the National Science Foundation for the kind of research—basic, fundamental, pure, non-economic, call it what you will—that hitherto has not received strong support from other sources. Some projects have received continuous support from fiscal year 1952, new grants having been made upon the expiration of old ones.

The column on membership in ESA was, of course, taken from the records of society. Usually those who are not members have closer ties with genetics or biochemistry than with entomology, but every one of those non-members should be invited to become members of ESA. Drosophila geneticists should be entomologists as well as geneticists.

| *Institution* | *Principal Scientist* | *Member ESA* | *Title of Project* | *Amount in Dollars* | *Period in Years* |
|---|---|---|---|---|---|
| **Fiscal Year—1952** | | | | | |
| Texas Agricultural Experiment Station | James Nevin Weaver | Yes | Nutritional Factors in Differentiation of the Honey Bee | 7,100 | 5 |
| University of New Mexico | C. C. Hoff | Yes | Effect of Elevation on the Distribution of Insect and Arachnid Groups | 7,500 | 3 |
| Brooklyn College | George S. Tulloch | Yes | The Nature of Certain Ultramicroscopic Bodies Associated with Insects | 3,600 | 1 |
| Kansas State College | Howard E. Evans | Yes | Behavior Patterns of Solitary Hymenoptera | 1,600 | 1 |
| University of Hawaii | D. Elmo Hardy | Yes | Diptera of Hawaii | 19,000 | 3 |
| Indiana University | Frank N. Young | Yes | Biometry and Taxonomy of Aquatic Beetles | 2,400 | 1.5 |
| University of Mississippi | Frank Montgomery Hull | No | Taxonomy and Phylogeny of Diptera | 9,000 | 2 |
| **Fiscal Year—1953** | | | | | |
| Cornell University | Howard E. Evans | Yes | Behavior Patterns of Solitary Hymenoptera | 7,900 | 3 |
| University of Kansas | C. D. Michener | Yes | Origin and Evolution of Caste Behavior among Certain Bees | 13,500 | 2 |
| Bernice P. Bishop Museum | J. L. Gressitt | Yes | Insects of Micronesia | 15,200 | 1.5 |
| **Fiscal Year—1954** | | | | | |
| Purdue University | D. C. Warren and<br>A. E. Bell | No<br>No | Heterosis in *Drosophila melanogaster* | 18,400 | 3 |
| Radford College | V. L. House | No | Genetic Control of Venation in Drosophila | 7,500 | 2 |
| Washington University | H. L. Carson and<br>H. D. Stalker | No<br>No | Investigation of Drosophila and Diptera | 11,500 | 3 |
| Montana State College | J. H. Pepper and<br>L. H. Johnson | Yes<br>No | The Composition and Structure of the Cuticular Components of the Exoskeleton of the Mormon Cricket | 10,000 | 2 |
| Oregon State College | V. H. Cheldelin | No | Nutrition and Metabolism of Insects | 15,000 | 2 |
| Academy of Natural Sciences of Philadelphia | J. A. G. Rehn | No | Orthoptera of North America | 16,000 | 2 |
| Bernice P. Bishop Museum | J. L. Gressitt | Yes | Insects of Micronesia | 30,000 | 3 |
| University of Hawaii | D. E. Hardy | Yes | Diptera of Hawaii | 2,000 | 1 |
| University of North Carolina | Z. P. Metcalf | Yes | Catalogue of World Homoptera | 16,000 | 2 |
| Roosevelt College | C. H. Seevers | Yes | Systematics and Evolution of Staphylinidae | 8,400 | 3 |
| University of Wisconsin | J. T. Medler and<br>S. D. Beck | Yes<br>Yes | Nutrition of Plant-Sucking Hemiptera | 6,500 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| | S. D. Beck | Yes | | | |

## NATIONAL SCIENCE FOUNDATION GRANTS FOR RESEARCH ON INSECTS AND RELATED ARTHROPODS—Continued

| *Institution* | *Principal Scientist* | *ESA Member* | *Title of Project* | *Amount in Dollars* | *Period in Years* |
|---|---|---|---|---|---|
| **Fiscal Year—1955** | | | | | |
| Oregon State College | V. H. Cheldelin | No | Nutrition and Metabolism of Insects | 24,000 | 2 |
| University of California Berkeley | John N. Belkin | Yes | Mosquitoes of the South Pacific | 7,000 | 2 |
| The Rocky Mountain Biological Laboratory | Charles L. Remington | Yes | Genetic and Ecological Adaptation in Natural Populations of Mountain Lepidoptera | 5,000 | 2 |
| University of Texas | Wilson S. Stone and Marshall R. Wheeler | No No | Drosophilidae of the Caribbean Region | 34,500 | 3 |
| Rocky Mountain Biological Laboratory | Colin S. Pittendrigh | No | Physiological and Behavioral Aspects of Adaptation in Related Insects | 6,400 | 2 |
| Johns Hopkins University | Vincent G. Dethier | Yes | Insect Chemoreception and Mechanism of Action of Attractants and Repellents | 30,000 | 3 |
| American Museum of Natural History | T. C. Schneirla | No | Army Ant Behavior and its Biological Basis | 4,800 | 2 |
| Kansas State College | Byron S. Miller and John A. Johnson | No No | Biochemical Factors in the Resistance of the Wheat Plant to the Hessian Fly | 6,800 | 2 |
| Tufts College | K. D. Roeder | Yes | Insect Neurophysiology, Pharmacology and Behavior | 42,300 | 3 |
| Smithsonian Institution | T. E. Snyder | Yes | Publication of an Annotated Bibliography of Termites | 3,600 | — |
| University of California Berkeley | Carl Epling | No | Adaptive Mechanisms in Selected Wild Populations of *Drosophila pseudoobscura* | 20,000 | 3 |
| California Academy of Science | Elwood C. Zimmerman | Yes | Insects of Hawaii | — | 2 |
| American Museum of Natural History | —— | — | The International Journal, Insectes Sociaux | 920 | — |
| **Fiscal Year 1956 (First Half)** | | | | | |
| Kansas State College | Reginald H. Painter | Yes | Interrelations of Host Plants and Insects | 9,700 | 3 |
| University of Kansas | Charles D. Michener and Robert E. Beer | Yes Yes | Biology of the Anthropod Associates of Army Ants | 4,800 | 2 |
| Bernice P. Bishop Museum | J. L. Gressitt | Yes | Zoogeography of Pacific Insects | 23,000 | 3 |
| The Academy of Natural Sciences of Philadelphia | J. A. G. Rehn | No | Orthoptera of North America | 36,000 | 3 |
| University of California Riverside | Irwin M. Newell | Yes | Correlation of Larvae and Adults of Polytrichous Trombidiform Mites | 7,600 | 2 |
| Wesleyan University | Ernst Caspari | No | Genetic Control of Formation of Pigment Granules in Ephestia | 9,000 | 2 |
| University of Minnesota | A. G. Richards | Yes | Temperature Effects and Membrane Properties in Insects | 27,100 | 3 |
| Cornell University | Howard E. Evans | Yes | Behavior Patterns of Solitary Hymenoptera | 7,200 | 2 |
| Virginia Polytechnic Institute | James McD. Grayson | Yes | Genetics of Resistance to Insecticides in the German Cockroach | 600 | 1 |
| | | | Total | $538,420 | |

## TENTH INTERNATIONAL CONGRESS OF ENTOMOLOGY

### *Montreal, Canada, August 17-25, 1956*

The mailing of the *Second Circular* of the Tenth International Congress of Entomology was completed in March. It is hoped that this circular, a booklet in four languages, will answer most of the outstanding questions concerning arrangements for the Congress. It has been sent to all prospective members who requested it and to many others who, for various reasons, were thought likely to attend. Anyone wishing to receive a copy may obtain it from the Secretary. The circular contains a series of application forms, due to be returned by April 30.

The smaller *First Circular* was widely distributed and was reprinted in the entomological journals of many lands. Our thanks are due to the editors of these journals. As a result, the Secretariat was inundated with letters—at the moment almost 1200 from more than 60 countries—expressing the writers' intentions to try, at least, to attend. It is impossible, at present, to predict the membership of the Congress, but planning proceeds on an estimate of 1500, of which perhaps 45 per cent will be from the United States and 25 per cent from Canada. Rumania, several countries of South America, and the U.S.S.R. have already announced that they will send national delegations, and a number of other countries will doubtless do likewise in due course. The Royal Entomological Society of London has booked thirty berths on the S.S. *Empress of France*, but the party from Britain is expected to exceed this figure considerably. There will be a large German group. Even such small or remote territories as Malta, Fiji, New Guinea, Cyprus and the Saar are likely to be represented. Dr. Thompson, the President, is now writing personal invitations designed to assist members to make their arrangements for the often difficult and costly journey. The Congress hopes also that universities, societies, government departments and other institutions will appoint delegates, and if individual invitations to do so are desired they will gladly be provided.

The sessions of the Congress will take place in McGill University and in the Université de Montréal. Both universities have very generously offered many important facilities, including social functions and a large amount of accommodation in student residences. Registration will take place in the Montreal High School, adjacent to McGill University. To these institutions, and also to the City of Montreal and the Province of Quebec, the Congress offers its sincere thanks.

Finances are, of course, always a key problem in an undertaking of this nature, and two matters in particular stand or fall with the fund-raising campaign now in progress. First, there are many entomologists overseas, including specialists of international reputation, whose small home university, for instance, cannot give them adequate support; secondly, publishing the Proceedings of a congress at which six hundred or more papers may be given is a formidable task. It is good to be able to indicate some successes. Support from the host universities, city, and province has already been mentioned. At an early and critical stage the Government of Canada promised a large contribution. The Entomological Society of America and the Entomological Society of Canada have made generous donations, as also have UNESCO, several of the other provinces of Canada and a number of commercial organizations. Yet a much better result is hoped for, notably from many large North American firms whose progress is linked with the progress of economic entomology.

The *Second Circular* shows the rather large number of invitation papers that have been arranged, and a few more are expected. Nevertheless, there will be ample space in all sections for papers submitted in the ordinary manner. If there seems to be undue emphasis on Canadian and U.S. contributions among the invitation papers, this is partly because some members from overseas could not give definite undertakings at a relatively early date; but we already have a number of highly distinguished contributors from overseas. The full shape of the program is not yet known, and there have been important additions since the circular was drafted. The Union International pour l'Etude des Insects Sociaux is likely to be co-sponsor of two symposia. A conference related to but technically not part of the Congress is under arrangement with the U.S. National Academy of Sciences. Dr. Dresden, of the National Council of Agricultural Research of the Netherlands, wishes to arrange a meeting with the aim of founding an insect toxicologists' information service, which would circulate a news-letter; and Dr. W. M. Hoskins, of Berkeley, plans to hold a meeting of the Bioassay Committee of the International Congress of Phytopharmacy.

Following the Congress a number of excursions have been arranged. Many members, however, will undoubtedly prefer to visit laboratories in Canada and the United States according to a personal itinerary. There will doubtless also be opportunity for universities and other institutions to invite such visitors, many of whom will be entomologists of recognized distinction, to give special lectures or seminars. Such an arrangement, in its turn, would also assist the Congress in its effort to provide adequate financial support for overseas entomologists who might otherwise be unable to attend. A list of prospective members can be provided by the Secretary on request.

Please address inquiries for the *Second Circular* and other correspondence concerning membership, to the undersigned.

J. A. Downes, Secretary,
Tenth International Congress of Entomology,
Science Service Building,
Ottawa, Ontario.

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## A. S. HOYT

As of February 25, 1956, Dr. A. S. Hoyt, retired Director of Crops Regulatory Programs, United States Department of Agriculture, became Plant Quarantine Consultant for the Holland Bulb Export Association. He succeeds the late E. R. Sasscer. In his new position Dr. Hoyt will assist the Dutch bulb industry in furthering good relations with the bulb industry in this country and with plant quarantine officials.

## BRANCH OFFICERS

The North Central Branch met March 28-30, 1956 at Lafayette, Indiana. Their new officers are given below. These names should be used rather than the 1955 officers as published in the March BULLETIN.

C. E. Mickel, *Chairman*, St. Paul, Minn.; D. A. Wilbur, *Chairman-Elect*, Manhattan, Kansas; C. W. Wingo, *Secretary-Treasurer*, Columbia, Mo.

# INFORMATION REQUESTED ON INSECTS AND THEIR CONTROL IN LOUISIANA IN 1954

KIRBY L. COCKERHAM, *Entomologist*
*Louisiana Agricultural Extension Service*

As a part of a recent national survey, county agents in five parishes in different parts of Louisiana were asked what percentage of the requests they received for information related to insects and their control. The average reported from these five county agents was 34 per cent on an annual basis, and 60 per cent during the crop production season. The accuracy of these figures was questioned by some on the ground that the survey was inadequate.

Having spent quite a number of years in research and the immediate past few years in extension work in entomology, the author was interested in following up this type of study to determine just how much Louisiana farmers were using entomological information. Consequently, the annual reports of all of the county agents, associate agents, and assistant agents in Louisiana were carefully studied and the data tabulated.

In order to arrive at related comparisons the figures were taken from the reports on major phases of crops and livestock production; viz., cotton, grain crops, fruit and nuts, and vegetables; dairy animals, beef cattle, and swine. Information requested on the various crops was separated between varieties, fertilizers, and insect control; and for livestock it was divided between breeding, feeding, and insect control. These were as closely related comparison as could be arranged, since varieties of crops and breeding of livestock are similar, fertilizers for plants and feed for livestock are similar, and insect control was the same for both crops and livestock.

Agents reported the number of inquiries of all kinds on the various subjects coming to them during the year. These totals were converted to percentages for the various phases mentioned. Of all the inquiries received regarding varieties, fertilizers, and insect control on cotton, grain crops, fruit and nuts, and vegetables an average of 32.2 per cent were concerning insect control. Of all the inquiries received on breeding, feeding, and insect control on livestock, 40.3 per cent related to insect control. The average percentage for insect control for both crops and livestock was 35.6 per cent.

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## SOUTHERN FOREST INSECT WORK CONFERENCE ORGANIZED

The Southern Forest Insect Work Conference was organized in Atlanta, Ga., on February 7. Twenty-two entomologists and foresters attended the meeting. The following officers were elected: R. J. Kowal, Chairman, R. E. Lee, Secretary-Treasurer; and L. W. Orr, L. O. Warren, and R. E. Heinz, Counselors, for a period of 1, 2, and 3 years, respectively.

The Conference, patterned after organizations which have operated effectively in the Northwest and Northeast for a number of years, was formed in response to numerous requests from men in the profession. It is intended to advance the science and practice of forest entomology, to provide a medium of exchange of progressional thought, and to serve as a clearing house for technical information on forest insect problems of the southern United States. It will encourage the participation of forest entomologists, and entomologists and foresters closely allied to the field of forest entomology. There will be no formal paper reading sessions or similar activity; rather the program will consist of informal "down-to-earth" discussion of research and research methods, plans, ideas, and accomplishments. Practical problems in forest insect detection, survey and control will also be included.

The officers come from different segments of the forestry profession. R. J. Kowal is Chief of the Division of Forest Insect Research at the Southeastern Forest Experiment Station, U. S. Forest Service. R. E. Lee is entomologist for the Union Bag and Paper Corporation. R. E. Heinz is forester for Gaylord Container Corporation, L. O. Warren is entomologist at the University of Arkansas, and L. W. Orr is Chief of the Division of Forest Insect Research at the Southern Forest Experiment Station.

The first program meeting of the Forest Insect Work Conference will be held during the week of September 9, probably at the Forestry School at the University of Georgia, Athens, Ga.

## Georgia Entomological Society

The 20th annual spring meeting was held at Savannah, Ga., on March 8 and 9. In his presidential address C. R. Jordan stressed the importance of good public relations if entomology is to receive proper recognition. (See page 1 this issue of the BULLETIN). A novel panel discussion was reports by industry of new pesticides that they had developed. Mention was made that Hercules AC 528 had been tested against 36 insects in 28 States, but no tolerance has yet been established for this material. Treatment of cottonseed with American Cyanamid 3911 (Thimet) protected cotton plants from several early-season pests and gave some control of cutworms. Bayer 17147 (Gusathion) experimentally has controlled pests of many crops other than cotton, and will be put on the market next year for certain uses. Systox is being used on 12 food crops, including beans. A firm in Savannah plans to market parathion-treated cotton cords for fly control on dairy and chicken farms. Heptachlor granules were reported to be promising for control of the boll weevil. Another panel covered resistance to insecticides, with K. D. Quarterman discussing insects of public-health interest and C. H. Hoffmann, insects of agricultural importance. Another panel discussed new developments in insect control on crops of interest to entomologists and growers in the Southeastern States, and a fourth concerned bioassay and residue studies.

## New Department Formed

A new Department of Botany and Entomology was formed on February 1, 1956 at the New Mexico A. & M. College, State College, New Mexico. The new department will carry on research in plant pathology, entomology and related fields. The Biology Department, which formerly handled these functions, will be concerned only with teaching from now on.

Head of the new department is Dr. J. G. Watts who, until recently, was research entomologist with the South Carolina Agricultural Experiment Station.

## Society Presidents

On numerous occasions we have found it necessary to look up past presidents of the parent Societies. For the convenience of those interested the lists have been assembled and checked with the help of F. L. Campbell. Names marked with an asterisk are those of members who served as presidents of both parent organizations. One of these, S. A. Forbes, served two terms as president of the A.A.E.E. as well. The seniors, in point of service, who are members today, are A. L. Quaintance, president of the A.A.E.E. in 1904, and P. P. Calvert, president of the former E.S.A. in 1914.

### Presidents of the American Association of Economic Entomologists

| | | | |
|---|---|---|---|
| C. V. Riley | 1889-90 | George A. Dean* | 1921 |
| James Fletcher | 1891 | J. G. Sanders | 1922 |
| J. A. Lintner | 1892 | A. G. Ruggles | 1923 |
| S. A. Forbes* | 1893 | A. F. Burgess | 1924 |
| L. O. Howard* | 1894 | H. A. Gossard | 1925 |
| John B. Smith* | 1895 | Arthur Gibson* | 1926 |
| C. H. Fernald | 1896 | R. W. Harned | 1927 |
| F. M. Webster* | 1897 | W. B. Herms* | 1928 |
| Herbert Osborn* | 1898 | T. J. Headlee | 1929 |
| C. L. Marlatt | 1899 | Franklin Sherman | 1930 |
| Lawrence Bruner* | 1900 | J. S. Houser | 1931 |
| C. P. Gillette | 1901 | W. P. Flint | 1932 |
| A. D. Hopkins | 1902 | W. E. Hinds | 1933 |
| E. P. Felt | 1902 | E. F. Phillips | 1934 |
| M. V. Slingerland | 1903 | L. A. Strong | 1935 |
| A. L. Quaintance | 1904 | L. S. McLaine | 1936 |
| H. Garman | 1905 | F. C. Bishopp | 1937 |
| A. H. Kirkland | 1906 | J. J. Davis* | 1938 |
| H. A. Morgan | 1907 | E. R. Sasscer | 1939 |
| S. A. Forbes* | 1908 | H. S. Smith | 1940 |
| W. E. Britton | 1909 | J. R. Parker | 1941 |
| E. D. Sanderson | 1910 | H. B. Weiss | 1942 |
| F. L. Washburn | 1911 | P. N. Annand | 1943 |
| W. D. Hunter | 1912 | E. O. Essig* | 1944 |
| P. J. Parrott | 1913 | D. L. Van Dine | 1945 |
| H. T. Fernald | 1914 | Clay Lyle | 1946 |
| Glenn W. Herrick | 1915 | E. N. Cory | 1947 |
| C. Gordon Hewitt | 1916 | S. A. Rohwer | 1948 |
| R. A. Cooley | 1917 | A. M. Boyce | 1949 |
| E. D. Ball | 1918 | C. P. Clausen | 1950 |
| W. C. O'Kane | 1919 | R. E. Campbell | 1951 |
| Wilmon Newell | 1920 | E. F. Knipling | 1952 |

### Presidents of the Former Entomological Society of America

| | | | |
|---|---|---|---|
| J. H. Comstock | 1906-7 | J. W. Folsom | 1931 |
| Wm. Wheeler | 1908 | J. J. Davis* | 1932 |
| Henry Skinner | 1909 | R. E. Snodgrass | 1933 |
| J. B. Smith* | 1910 | C. L. Metcalf | 1934 |
| Herbert Osborn* | 1911 | Clarence H. Kennedy | 1935 |
| S. A. Forbes* | 1912 | H. B. Hungerford | 1936 |
| C. J. S. Bethune | 1913 | O. A. Johannsen | 1937 |
| P. P. Calvert | 1914 | A. L. Melander | 1938 |
| V. L. Kellogg | 1915 | E. M. Walker | 1939 |
| F. M. Webster* | 1916 | W. D. Funkhouser | 1940 |
| Lawrence Bruner* | 1917 | W. B. Herms* | 1941 |
| Nathan Banks | 1918 | Charles P. Alexander | 1942-43 |
| J. G. Needham | 1919 | Clarence E. Mickel | 1944 |
| L. O. Howard* | 1920 | J. A. G. Rehn | 1945 |
| J. M. Aldrich | 1921 | C. F. W. Muesebeck | 1946 |
| Arthur Gibson* | 1922 | Z. P. Metcalf | 1947 |
| T. D. A. Cockerell | 1923 | H. H. Knight | 1948 |
| C. W. Johnson | 1924 | Alvah Peterson | 1949 |
| George A. Dean* | 1925 | W. P. Hayes | 1950 |
| W. A. Riley | 1926 | J. Chester Bradley | 1951 |
| F. E. Lutz | 1927 | E. G. Linsley | 1952 |
| E. O. Essig* | 1928 | | |
| C. T. Brues | 1929 | | |
| Edith M. Patch | 1930 | | |

### Presidents of the New Entomological Society of America

| | | | |
|---|---|---|---|
| Charles E. Palm | 1953 | G. C. Decker | 1955 |
| H. H. Ross | 1954 | B. A. Porter | 1956 |

## USDA Scientists Use Virus Disease to Kill Forest Insects

The Virginia pine sawfly, an insect pest of pine trees in the Eastern and Central United States, has been controlled in localized areas with a virus-disease spray, the U. S. Department of Agriculture reports.

This achievement, coupled with earlier (1951) successful virus control of the European pine sawfly, leads Department scientists to believe that there is considerable hope for the eventual practical use of diseases against many forest insects.

Insect pathologists S. R. Dutky, J. V. Thompson, and C. G. Thompson of USDA's Agricultural Research Service and entomologist J. M. Davis of the Forest Service obtained, as a result of several experiments carried out in Maryland pine woods in 1955, 77 percent to nearly complete kills of sawflies with the virus sprays. Their tests further showed that the virus of the Virginia pine sawfly affected the European pine sawfly, and vice versa.

The chain of events leading to successful virus control of the Virginia pine sawfly began in May 1954, when scientific examination of several severely damaged pine trees in Montgomery County, Md., revealed some of the sawfly larvae to be naturally infected with a virus. In their laboratory, the scientists successfully preserved the virus from 30 infected larvae that they had collected, then developed techniques to rear and infect other Virginia pine sawfly larvae with this preserved virus. In this way, they built up over the winter of 1954-55 a bank of some 5,000 virus-killed sawfly larvae, each yielding about 50 million virus-containing polyhedra (polyhedron-shaped granules that help protect the virus from inactivation).

In a typical field test last summer, a two-acre area containing 38 insect-infested pine trees was sprayed from the ground, each tree getting dosed with a water suspension of 500 million polyhedra.

Nine days after spraying, about half the sawfly larvae showed symptoms of infection, and on the 11th day, 77 percent of the larvae collected were dead. Many of those that survived to spin cocoons were infected with the virus.

In laboratory tests to measure the interchangeability of the two sawfly viruses, the scientists found that the European sawfly virus was more deadly to the European pine sawfly than was the Virginia pine sawfly virus—causing 97 percent as compared with 84 percent mortality. Field use of the European pine sawfly virus against the Virginia pine sawfly resulted in 51 percent control as compared with 97 percent control achieved with the Virginia pine sawfly virus.

## CARYL P. HASKINS

Dr. Haskins, formerly of Haskins Laboratories in New York City, became President of the Carnegie Institution of Washington on January 1, 1956. He has been a member of the Board of Trustees of the Institution since 1949. Recently he was elected to the National Academy of Sciences and was named by President Eisenhower to the Board of Regents of the Smithsonian Institution.

Dr. Haskins is a member of this Society and our Washington office is in the Carnegie Institution Building. We take this means of congratulating Dr. Haskins and of expressing the Society's thanks to the Carnegie Institution for their many kind considerations.

# PROCEEDINGS OF THE TWENTY-SEVENTH ANNUAL MEETING

## Eastern Branch, Entomological Society of America

*Baltimore, Md., November 21 and 22, 1955*

The Twenty-Seventh Annual Meeting of the Eastern Branch, Entomological Society of America, was held at the Lord Baltimore Hotel, Baltimore, Maryland, on Monday and Tuesday, November 21 and 22, 1955. Dr. Ellsworth H. Wheeler, Chairman, and Dr. F. W. Poos, Vice-Chairman, presided during the two-day sessions in which 50 talks or papers were presented. In addition, an informal discussion dealing with street tree and home yard insect pest control problems was presided over by W. B. Becker the evening of November 21. Other discussion leaders were C. C. Hamilton, T. W. Kerr, S. F. Potts and J. C. Schread. Dr. George C. Decker, president of the parent association, gave a short talk and extended a cordial invitation to all to attend the annual meeting of the parent association which was to be held in Cincinnati in December. Mr. Robert H. Nelson, newly appointed Executive Secretary of the Entomological Society of America, reviewed some of the accomplishments and problems of the parent society.

At a short business meeting the first day, the report of the Secretary-Treasurer was given and the financial statement presented was referred to the *Auditing Committee.* Chairman Wheeler appointed the following committees to report back at the final business meeting:

*Nominations:* A. C. Davis, Henry E. Gray, Henry Menusan, Jr., Chairman.

*Auditing:* Albert A. LaPlante, George K. Schumaker.

*Resolutions:* J. O. Pepper, J. B. Kring, J. Alfred Adams, Chairman.

### Report of the Secretary-Treasurer

The officers of the society met with the *Program Committee* in the office of the Chairman, E. N. Woodbury, in late July. It was decided to send out a notice of the November meeting and invite paper titles. This was done in mid-September, notices going to all members of the parent society residing in the Eastern Branch territory. The response received enabled the *Program Committee* to put together a program of 50 topics and papers. Concurrent sessions were run on the afternoon of the first day and an evening session on Monday.

### Financial Statement

| | |
|---|---|
| Balance on hand November 5, 1954 | $ 611.15 |
| Receipts during the year | 664.00 |
| Total | $1,275.15 |
| Disbursements during the year | $ 506.86 |
| Balance on hand November 1, 1955 | 768.29 |
| Total | $1,275.15 |

A detailed copy of the Financial Statement was examined by the *Auditing Committee* and is in the files of the undersigned.

Byrley F. Driggers
Secretary-Treasurer

The following committee reports were submitted and approved at the final business meeting on November 22.

### Report of the Resolutions Committee

*Whereas* the following members have died since the last meeting of the Eastern Branch, be it resolved that the Eastern Branch, through its secretary, extend its sympathy to their families:

C. T. Brues
Carl Heinrich
E. R. Sasscer
W. J. Schoene
J. M. Swaine

*Whereas,* Officers and Committees of the Eastern Branch of E.S.A. have arranged for a successful meeting of the Branch,

*Be It Resolved,* that the membership of the Eastern Branch express its grateful appreciation for the leadership of its officers, including the representative to the Governing Board of E.S.A., the program committee, the committee on local arrangements, and the students of the University of Maryland and Rutgers University for their efficient operation of projectors.

*Whereas,* President George C. Decker and Executive-Secretary R. H. Nelson have brought the Eastern Branch such excellent reports of our Society,

*Be It Resolved,* that the Eastern Branch of the E.S.A. express its grateful appreciation to President Decker and Secretary Nelson for their leadership in this third year of the Society and for their attendance at our annual meeting.

*Whereas,* the management of the Hotel Lord Baltimore has provided excellent facilities for our meeting in its usual efficient manner,

*Be It Resolved,* that we express our appreciation to the management of the Hotel Lord Baltimore.

*Whereas,* it seems desirable to attract entomologists representing a wide variety of interests to membership in E.S.A. and to active participation in the Eastern Branch,

*Be It Resolved,* that the Executive and Program Committees be encouraged to take positive and timely action to encourage the presentation of papers representing all phases of entomology.

*Whereas,* confusion in popular literature on insects is frequently created by lack of unmistakable designation of the species,

*Be It Resolved,* that in order to increase the usefulness of bulletins, circulars, and other publications giving popularized accounts of insect pests, it is urged that the scientific names of the pests discussed be given in each publication either in the text or by footnote.

*And Be It Further Resolved,* that this resolution be forwarded to the Executive Secretary of the Entomological Society of America for consideration by the resolutions committee at the annual meeting at Cincinnati.

Respectfully submitted,
J. O. Pepper
J. B. Kring
J. A. Adams, Chairman

### Report of the Eastern Branch Representative on the Governing Board of the Entomological Society of America

As a result of the election of Dr. B. A. Porter as President-elect of the Entomological Society of America, the Eastern Branch was without a representative to the Governing Board. The *Executive Committee* of the Eastern Branch, therefore, appointed your present representative at the time of the Houston meeting. Dr. Porter was installed as President-elect at the final business meeting of the E.S.A. at the Houston meeting and your representa-

tive was installed at the same time as Eastern Branch representative to the Governing Board of the E.S.A.

Fortunately, I was permitted to sit with the Board during several sessions before actually assuming office. This courtesy enabled me to gain considerable insight into the obligations and responsibilities of Board members.

Since my appointment I attended the only Board meeting held. Your representative plans to attend the annual meeting of the E.S.A. in Cincinnati and expects to attend all meetings of the Governing Board during my term of office.

During the year I have served on the *Constitution and By-Laws Committee* of the E.S.A. There has been a considerable amount of correspondence during the year and several items of business of the society have been resolved in this manner. Our President and Executive Secretary have given rather detailed reports on the activities of the E.S.A. for 1955. I shall, however, list some of the major actions of the Board as follows:

1. Appointment of an Executive Secretary, E.S.A.
2. Selection of Memphis, Tennessee, as the site for the 1957 meeting.
3. Resolution—Armed Forces Career Compensation Act.
4. Consideration of student membership.
5. Nominations of candidates for President-elect.

In some instances a decision was required immediately; however, when time permitted your representative consulted with the Executive Committee and/or the Secretary of the Eastern Branch on all matters.

**Recommendations to the Eastern Branch**

1. That the *Executive Committee* of the Eastern Branch instruct their representative to the Governing Board on matters of interest and of benefit to the Branch; and that individual members also report matters to the Branch representative on which they wish consideration by the Governing Board.
2. That the representative to the Governing Board be held responsible for a written report at each annual meeting of the Branch.
3. That the Branch request the Governing Board, through their representative, that matters of importance be handled, whenever possible, in such a manner that the Branch representative may have time to confer with the *Executive Committee* of the Branch before final action is taken.

Respectfully submitted,
Bailey B. Pepper
Eastern Branch Representative
to the Governing Board, E.S.A.

**Report of the Auditing Committee**

Your *Auditing Committee* has examined the Financial Statement, books and records of the Secretary-Treasurer, Dr. B. F. Driggers, and finds them correct and in good order.

Respectfully submitted,
A. A. LaPlante
George Schumaker

**Report of the Nominating Committee**

Your Committee proposes the following names to serve as officers of the Eastern Branch, E.S.A., for 1956.

Chairman: Dr. F. W. Poos
Chairman-elect: Dr. C. C. Alexander
Representative to Governing Board: Dr. B. B. Pepper

Respectfully submitted,
A. C. Davis
Henry Gray
Henry Menusan, Jr., Chairman

The officers reported by the committee were elected.

Under new business Dr. A. A. LaPlante moved that the representative of the Eastern Branch to the Governing Board contact the national organization regarding the setting up of a clearing house where prospective employers and employees can get together. This resolution was discussed and passed.

The membership voted to hold the 1956 meeting in Atlantic City. The dates selected were Monday and Tuesday, November 19 and 20 at the Chalfonte-Haddon Hall.

The new Chairman announced the appointment of A. C. Miller as chairman of an Eastern Branch *Committee on Membership* (to supplement but not supplant the work of the parent society's membership committee) and requested permission to include the names of the members of this and other 1956 Committees in the Proceedings. Members of the membership committee are as follows:

| | |
|---|---|
| John S. Barker | Randall Latta |
| William B. Becker | Arnold Mallis |
| Emory D. Burgess | John O. Pepper |
| D. L. Collins | Eugene P. Reagan |
| James G. Conklin | Herman O. Schroeder |
| Merrill M. Darley | Herbert H. Schwardt |
| Richard F. Darsie, Jr. | John W. Scott |
| Berton C. Dickinson | H. L. Seamans |
| C. K. Dorsey | Ralph W. Sherman |
| James R. Foster | G. W. Simpson |
| Elton J. Hansens | Miner J. Sloan |
| Harry Haynes | Edward H. Smith |
| J. Peter Johnson | C. R. Willey |
| Theodore W. Kerr, Jr. | Paul A. Woke |
| E. F. Knipling | |

By direction of the Governing Board of the Entomological Society of America an Eastern Branch *Committee on Sustaining Associates* has been appointed as follows:

| | |
|---|---|
| Paul J. Chapman | Charles E. Palm |
| William E. McCauley | John Van Geluwe |

Ralph E. Heal, Chairman

Respectfully submitted,
Byrley F. Driggers
Secretary-Treasurer

## Washington State Entomological Society

The fourth meeting of the Washington State Entomological Society was held at Walla Walla College in College Place, Washington, March 22 and 23, 1956. H. P. Lanchester is President and Melville H. Hatch, Secretary-Treasurer. The report furnished by Dr. Hatch indicates that this was a very interesting meeting. An extensive and timely discussion on the topic "Methods of Spreading Interest in Entomology" was held under the leadership of President Lanchester. The next meeting has been tentatively set for Wenatchee in September. Entomologists in Washington and near-by should write Dr. Hatch at the Department of Zoology, University of Washington, Seattle 5 for details. The annual dues are $1.00 per year—an entomological bargain!

## E. N. CORY

Nearly 500 friends and associates of Dr. Cory attended the dinner in his honor at the University of Maryland on May 24, 1956. This was on the occasion of Dr. Cory's retirement and was announced in the March BULLETIN.

Dr. T. B. Symons was the capable Master of Ceremonies. Dr. P. D. Sanders, Editor of *The Southern Planter* highlighted the evening with his eminent Testimonial Address.

Dr. Cory will leave about July 1 for British Guiana where he will spend about a year as Chief of Party for a group of agricultural specialists working under the International Cooperative Administration.

# PROCEEDINGS OF THE THIRTIETH ANNUAL MEETING

## The Cotton States Branch—Entomological Society of America

*Atlanta, Georgia, February 6, 7, and 8, 1956*

The Thirtieth Annual Meeting of the Cotton States Branch, E.S.A., was held in the Biltmore Hotel in Atlanta, Georgia, on February 6, 7, and 8, 1956. The meeting was held in connection with the Association of Southern Agricultural Workers. Two hundred three members and guests registered for the three-day meeting. Chairman H. C. Young opened the meeting promptly at 9:30 a.m. on February 6. The report of the secretary-treasurer was read and approved. Chairman Young appointed the following committees:

*Auditing:* E. H. Floyd, J. K. Reed, G. G. Rohwer, *Chairman*

*Nominating:* F. S. Arant, J. T. Conner, Jr., J. W. Ingram, *Chairman*

*Resolutions:* K. S. Littig, F. S. Chamberlain, J. W. Wilson, *Chairman*

Dr. C. M. Beckham of the Georgia Agricultural Experiment Station officially welcomed the Cotton States Branch to Atlanta. Vice-chairman A. N. Tissot assumed the chair and presented Chairman Young for the Annual Address of the Chairman. Chairman Young discussed the white-fringed beetles from their discovery in the United States until the present time. He stressed the increased efficiency of the present-day insecticides on control of these insects as compared to those available at the time the insects were introduced.

Dr. B. A. Porter, President of the Entomological Society of America, represented the parent association at the meeting. In his address he discussed the functions and current problems of the national society and pledged the cooperation of the national organization with the Cotton States Branch. In accordance with action taken at the 1955 meeting, Chairman Young appointed an *Entomology Curriculum Committee* on March 21, 1955, consisting of H. S. Adair, R. P. Colmer, J. T. Creighton, C. G. Lincoln, W. C. Nettles, C. N. Smith, and F. E. Guyton, Chairman, to study the training and experience which seemed desirable for students in entomology who are to receive graduate degrees. Chairman Guyton presented the report which was based on a survey of all members of the Cotton States Branch. It included a proposed curriculum based on the survey and compared the proposed curriculum with those from a selected Cotton States Branch and a northern institution.

Seventy-one papers were presented during the three-day meeting. The papers covered a wide variety of work being carried on within the area of the Cotton States Branch. The *Program Committee* was composed of Charles Lincoln, G. D. Jones, R. P. Mullett, D. O. Wolfenbarger, and M. E. Merkl, Chairman. The *Public Relations Officer* was C. R. Jordan, Jr. The *Committee on Local Arrangements* consisted of Al Connelly, A. B. Wigger, J. W. Maxwell, Ralph C. Barnes, W. E. Blasingame, and H. D. Purswell, Chairman.

In the business sessions the following business was approved:

1. SECRETARY'S REPORT.

The secretary's report showed a membership of 585 of the E.S.A. residing within the area of the Cotton States Branch. Notices of the 30th annual meeting, the questionnaire prepared by the curriculum committee, and the published program were sent to all members.

2. REPORT OF THE EXECUTIVE COMMITTEE.

The *Executive Committee*, composed of H. C. Young, A. N. Tissot, W. G. Bruce, F. S. Arant, and W. G. Eden met on February 7, 1956. The following items were recommended by the *Executive Committee* and approved by the members:

a. Since the Alabama Polytechnic Institute will pay transportation and partial per diem for the Secretary-Treasurer, W. G. Eden, it was voted to supplement his per diem allowance by $7.00 per day.

b. That the representative to the Governing Board of the National Society from this Branch be made a member of the *Branch Executive Committee*. The *Executive Committee* is to consist of 6 members: the chairman, the chairman-elect, the secretary-treasurer, the representative to the governing board, and the two immediate past chairmen.

c. That the Branch have a *Sustaining Associates Committee* to assist the National Society in obtaining sustaining associates. This committee to be appointed by the chairman and to consist of 6 members: 2 appointed for a period of 1 year; 2 appointed for a period of 2 years; and 2 appointed for a period of 3 years; and thereafter, 2 appointed annualy for a period of 3 years. The Branch chairman shall designate the first chairman of this committee to serve for 1 year, but thereafter the committee members shall select one of their members as chairman.

d. That the Branch establish a *Membership Committee* to work with and to supplement the work of the *National Membership Committee*. This committee to consist of 10 members, one from each state of the Branch area and the member of the *National Membership Committee* from this Branch area. The committee to be appointed by the chairman as follows: 3 members for a period of 1 year; 3 members for a period of 2 years; 3 members for a period of 3 years; and thereafter 3 members appointed annually for a period of 3 years. The Branch chairman shall designate the first chairman of the *Membership Committee* who shall serve for 1 year but thereafter the committee members shall select their chairman.

e. That the Branch consider adopting a constitution in order to define the duties and rules of procedure for the officers and committees; that the chairman appoint a committee of 7 members to study the constitutions of the other branches of the E.S.A. and draft a proposed constitution for this Branch; that the proposed constitution be mailed to all members on or before the time announcements are sent out by the secretary regarding the 1957 meeting with a request for modifications by the members; that the proposed constitution after any modifications have been approved by the constitution committee be again sent to all members and a mail ballot taken on its adoption; an affirmative vote of two-thirds of those voting in a mail ballot shall be required for adoption.

f. That the Branch abolish its present procedure of having a *Program Committee* for each annual meeting and establish a standing committee consisting of 6 members appointed by the Branch chairman as follows: 2 members to serve 1 year; 2 members to serve 2 years; 2 members to serve 3 years; and thereafter 2 members to be appointed annually to serve 3 years. The Branch chairman shall designate the committee chairman each year.

The program committee, in addition to preparing the programs for the annual meetings, shall make a study of program procedures and make recommendations to the Branch for improvements in its programs.

3. REPORT OF THE AUDITING COMMITTEE.

We, the *Auditing Committee* of the Cotton States Branch, E.S.A., have examined the books and accounts of the Secretary-Treasurer, W. G. Eden, Auburn, Alabama, for the year 1955-56. The following balance is now on hand:

| | |
|---|---|
| Checking account | $300.55 |
| Savings account | 137.09 |
| Balance on hand Feb. 8, 1956 | $437.64 |

The accounts are balanced with receipts and vouchers and appear true and correct.

Respectfully submitted,
J. K. Reed
E. H. Floyd
G. G. Rohwer, Chairman

4. CHAIRMAN-ELECT.

A motion was made and passed that the Branch elect a chairman-elect each year who shall serve for one year at the end of which he shall become chairman for one year.

5. ENTOMOLOGY CURRICULUM COMMITTEE.

A motion was made and passed that the report of the *Entomology Curriculum Committee* be published in one of the entomological journals in order that the profession might have the benefit of the study.

6. REPORT OF THE NOMINATING COMMITTEE.

We submit the following for officers for the coming year:

| | |
|---|---|
| Chairman | A. N. Tissot |
| Chairman-Elect | Norman Allen |
| Representative to the Governing Board | O. I. Snapp |

F. S. Arant
J. T. Conner
J. W. Ingram, Chairman

The report of the committee was accepted and the officers were elected.

7. BRANCH NAME.

In accordance with action taken at the 1955 annual meeting, Chairman Young appointed the following committee on March 14, 1955 to study the desirability of changing the name of the Branch: J. W. Wilson, Chairman, L. D. Newsom, J. H. Cochran, Gordon Barnes, and K. D. Quarterman. The committee report was made in two parts. The majority report favored changing the name of the Branch to the Southeastern States Branch and a motion was made to do so. The minority report opposed changing the name of the Branch. After considerable discussion, the motion to change the name of the Branch was tabled.

8. REPORT OF THE RESOLUTIONS COMMITTEE.

*Whereas*, the success of our meeting is largely dependent upon the foresight and efforts of many persons,

*Therefore be it resolved*, that the Cotton States Branch here convened in the Biltmore Hotel, Atlanta, Georgia, on February 6, 7, and 8, 1956, express thanks and appreciation to all those who have contributed to the success of the meeting and especially to the following:

To Hiram C. Young for his interest and continuing efforts as chairman of the Cotton States Branch during the past year, and

To W. G. Eden for his outstanding work as secretary-treasurer of the Cotton States Branch, and

To H. D. Purswell and other members of the committee on Local Arrangements for the excellent meeting place and arranging an interesting program for the visiting ladies, and

To M. E. Merkl and other members of the Program Committee for arranging an interesting program, and

To the management of the Biltmore Hotel for the efficient and hospitable manner of handling our meeting and for the many courtesies extended, and

To Mrs. Werter, Georgia Department of Entomology, and Miss Tucker, Cotton Producers Association, for their assistance in typing and at the registration desk, and

To the editors of the newspapers who have given us excellent coverage of this meeting, and

To B. A. Porter, President of the Entomological Society of America, for his interesting report on the activities of the parent organization.

*Whereas*, forty commercial companies have graciously contributed to make this meeting a success.

*Therefore be it resolved*, that the secretary be directed to send these companies as recorded in his files a letter in behalf of the Cotton States Branch.

*Whereas*, the effective projection of lantern slides is an important factor in the presentation of scientific papers at meetings and,

*Whereas*, there is a recurrent difficulty in obtaining satisfactory projection equipment for the Cotton States Branch meetings,

*Therefore be it resolved*, that a projector, or projectors, suitable for projecting both 3¼" x 4" and 2" x 2" slides be purchased by the Branch, such projector to be in the custody of the Branch Secretary.

*Whereas*, the profession of entomology and the Cotton States Branch, in the passage of another year, has lost through death respected and beloved members of our profession; among those being C. H. Alden who served on many committees, as chairman of the Branch, and as Chief Entomologist of the State of Georgia, and Z. P. Metcalf who devoted his life to entomology in the capacities of scientist, teacher, and administrator, therefore

*Therefore be it resolved*, that the Cotton States Branch express sincere regret at the passing of these entomologists and instruct the secretary to express to members of the bereaved families the sympathy of this organization.

Kent S. Littig
F. S. Chamberlain
J. W. Wilson, Chairman

Respectfully submitted,
W. G. Eden
Secretary-Treasurer

## CIVIL SERVICE ANNOUNCEMENT

The United States Civil Service Commission has announced an Agricultural Research Scientist examination for positions in a wide variety of agricultural fields, including entomology. The salaries range from $4,525 to $10,320 a year. The positions are located principally in the Department of Agriculture and the Department of the Interior in Washington, D. C., and throughout the United States.

To qualify, applicants must have had appropriate education plus professional experience. Graduate study may be substituted for experience. Interested persons may obtain further information regarding the requirements and instructions on applying at many post offices, or from the U. S. Civil Service Commission, Washington 25, D. C. They should ask for Announcement No. 58B. Applications will be accepted until further notice.

## PROCEEDINGS OF THE FOURTH ANNUAL MEETING

### Southwestern Branch—Entomological Society of America

### *Fort Worth, Texas, February 20-21, 1956*

The Fourth Annual Meeting of the Southwestern Branch of the Entomological Society of America was held in Fort Worth Texas, February 20-21, 1956.

The meeting was called to order by Chairman D. C. Earley. Following the invocation, which was presented by Dr. Clarence A. Sutton, Governing Board Member J. C. Gaines assumed the chair and presented Mr. Jess Tarlton, Mayor pro tem of Fort Worth, in an Address of Welcome. Following the address, Dr. Gaines introduced the Chairman, D. C. Earley, who gave the Annual Address of the Chairman.

The assembled group of 225 enjoyed remarks of the President of the Entomological Society of America, B. A. Porter. Following Dr. Porter's remarks, the invitational address, *"The Operation of the Miller Pesticide Chemicals Amendment"* was presented by Reo F. Duggan, Chief Chemist, Food and Drug Administration, New Orleans, Louisiana.

Fifty-three submitted papers were presented during the meeting.

The annual banquet was held on Monday night with Mr. Bill Durham, agricultural writer of the *Fort Worth Star Telegram*, as Master of Ceremonies.

Chairman Earley called for the following reports:

**Treasurer's Report**

| | | |
|---|---|---|
| Jan. 17, 1955 Balance on hand | | $528.16 |
| Disbursements: | | |
| Stamps | $ 19.00 | |
| Printing | 86.26 | |
| | | 105.26 |
| Feb. 21, 1956 Balance on hand | | $ 422.90 |

Respectfully submitted,
Sherman W. Clark
Secretary-Treasurer pro tem

**Report of the Auditing Committee**

We, the *Auditing Committee* of the Southwestern Branch, Entomological Society of America, have on this 20th day of February, 1956, examined the receipts and expenditures of the Secretary-Treasurer of the Branch and do hereby certify that said receipts and expenditures are in order.

Respectfully submitted,
Manning A. Price
M. L. Anderson
C. A. Richmond, Chairman

**Report of the Nominating Committee**

The *Nominating Committee* nominated officers for 1956 as follows:

Chairman, J. C. Gaines
Vice-Chairman, H. L. Chada
Secretary-Treasurer, Sherman W. Clark
Member Executive Committee, R. C. Bushland
Member Governing Board, P. J. Reno

The membership unanimously approved the nominations.

**Report of the Committee on Resolutions**

The *Resolutions Committee* was composed of Gus A. Bieberdorf, Clay Brazeal, and F. M. Fuller, Chairman.

The following resolutions were adopted by the membership:

*Whereas*, the Southwestern Branch of the Entomological Society of America has lost one of its faithful and esteemed associates, George C. Menzies

*Therefore be it resolved*, that the Secretary be instructed to write his family a letter of condolence and that the members present rise for a minute of silent meditation in his memory.

*Whereas*, the excellent facilities of the Hotel Texas have been made available by the management and staff to the complete satisfaction of the membership

*Therefore be it resolved*, that the members of the Southwestern Branch of the Entomological Society of America appreciate the Hotel's services and extend thanks to it for its courtesies.

*Whereas*, the members of the Committee on Local Arrangements have been responsible for the arrangements of the meeting and through their untiring efforts have made it an outstanding success

*Therefore be it resolved*, that the membership of this Society express its appreciation and thanks for their contribution.

*Whereas*, the Chamber of Commerce of the City of Fort Worth has been most helpful and cooperative in making this meeting a success

*Therefore be it resolved*, that the membership of this Society extend to the Chamber of Commerce its appreciation.

Chairman Earley appointed the following Sustaining Associates Committee:

Manning A. Price
Sherman W. Clark
E. W. Laake, Chairman

Respectfully submitted,

Sherman W. Clark
Secretary-Treasurer

### ANNUAL REVIEW OF ENTOMOLOGY

Dr. E. A. Steinhaus, Editor of the ANNUAL REVIEW OF ENTOMOLOGY, published a very lucid discussion of this annual work in the June 1955 issue of the BULLETIN. Volume I has appeared and is now in the libraries of a large number of our members. A review of this volume was published in the March 1956 BULLETIN. Volume II will appear about the first of February 1957. A list of the contents of volume II is given in the article by Steinhaus cited above. The subject matter of the 22 chapters and the authors of these chapters indicate the importance and quality of this book.

We shall send each member of the Society an order blank for volume II. An opportunity will be given to members who did not receive volume I to order it at the same time. The membership price is $7.00 in North America and U. S. possessions and $7.50 elsewhere. Payment is to be made to the Washington office of the Society after receipt of the book and invoice from this office. Library, institutional and other non-member orders are to be placed with Annual Reviews, Inc., Stanford, California. The price to non-members is $7.00 in the U. S. and possessions and $7.50 elsewhere payable directly to Annual Reviews, Inc.

We wish to urge that you plan at this time to have all copies of the ANNUAL REVIEW OF ENTOMOLOGY on your desk for ready reference.

# PROCEEDINGS OF THE ELEVENTH ANNUAL MEETING

## North Central Branch—Entomological Society of America

## Purdue University, Lafayette, Indiana

## *March 28, 29, and 30, 1956*

The Eleventh Annual Meeting of the North Central Branch of the Entomological Society of America was called to order by Chairman Harold Gunderson at 9 a.m., March 28, 1956 at the Purdue Memorial Union of Purdue University. During the three day meeting nearly ninety topics were presented by various discussion leaders in the general and twelve sectional meetings. The proceedings of this meeting will be published as Volume 11 of the Proceedings of the Annual Meeting of the North Central Branch, Entomological Society of America, and may be obtained by writing to the Branch Secretary, Curtis W. Wingo, University of Missouri, Columbia, Missouri. Price of the Proceedings is $3.00.

### Preliminary Business Session

The preliminary business session of the North Central Branch was called to order by Chairman Gunderson at 11:30 a.m., March 28, 1956 at the Purdue Memorial Union.

Secretary Roy W. Rings was requested to report on the actions of the *Executive Committee.*

### Report of the Executive Committee

The first meeting of the *Executive Committee* was held at 9 p.m., March 27, 1956 at the Purdue Union Club. The initial topic of discussion was the time and place of the 1958 meeting. It was the unanimous recommendation of the Committee that the 1958 meeting be held in St. Louis, Missouri. The suggested dates were March 26, 27 and 28. The Committee further recommends that Milwaukee, Wisconsin be considered seriously for the 1959 meeting. It was moved, seconded and passed that the recommendations of the *Executive Committee* be approved by the North Central Branch membership.

A. W. Busicky reported to the *Executive Committee* actions of the *Sustaining Associates Committee* in the North Central Branch area. He recommended a special *Committee on Sustaining Associates* be appointed at the Branch level and the Committee approved and promised further consideration and action in the matter.

In regard to obtaining new members for the parent Society and for the Branch, the *Executive Committee* recommended to Chairman-elect C. E. Mickel that he appoint a special committee to contact prospective Entomological Society of America members in the North Central Branch area, thus increasing the membership of both organizations.

In regard to programing, the *Executive Committee* unanimously voted for a 2½ day meeting ending Friday noon. This action was taken to guide future planning by *Program Committees.*

The *Executive Committee* also recommended that persons submitting topics or titles for the Program also indicate the Section in which the subject should be presented. If this is done, it will facilitate the work of the *Program Committee* in dividing the subject matter into sectional groupings.

Several actions of the Governing Board of the Entomological Society at the Cincinnati meeting were discussed:

First, by action of the Governing Board, members of the Entomological Society of America in Canada have been advised that they may register an affiliation with an existing Branch of their choice. The Committee wishes to welcome our good friends north of the border who have already requested affiliation with the North Central Branch and to extend a cordial invitation to others who have not yet taken advantage of this opportunity.

The Governing Board granted the request of members in Montana and Wyoming that the members in these states be affiliated with the Pacific Branch. The Committee expresses regret at the loss of these members but wishes them success in their new affiliation.

### Report of the Nominating Committee

The following roster of candidates was selected by the *Nominating Committee* for election to office at the 1956 Annual Meeting:

*Chairman-elect*—S. A. Graham, Don Wilbur
*Secretary-treasurer*—Curtis Wingo, George York
*Member of the Executive Committee-at-Large*—L. K. Cutkomp, R. W. Rings

Respectfully submitted,
J. A. Callenbach
R. E. Hill
J. H. Lilly, Chairman

Chairman Gunderson next introduced the members of the *Program Committee* consisting of J. Carl Dawson, A. G. Peterson and Robert E. Beer, Chairman.

The Chairman also introduced the members of the *Local Arrangements Committee* consisting of Glen Lehker, D. Lyle Goleman, Lee Truman, John Brandenburg and George E. Gould, Chairman.

The session was declared adjourned by the Chairman at 12 noon.

### Final Business Session

The final business session was called to order by Chairman Gunderson at 8:30 a.m. on March 30, 1956 at the Union Club of Purdue University.

The Chairman next called for new business and there was none.

The next topic on the agenda was the Treasurer's Report.

### Report of the Treasurer

| | |
|---|---|
| Balance on hand March 22, 1955 | $ 181.20 |
| Receipts during the year | $1,235.00 |
| Total | $1,416.20 |
| Disbursements during the year | $ 902.33 |
| Balance on hand March 22, 1956 | $ 513.87 |
| Total | $1,416.20 |

A detailed copy of the Treasurer's Report was examined by the Auditing Committee and is now in the files of the new Treasurer, C. W. Wingo.

Respectfully submitted,
Roy W. Rings, Treasurer
North Central Branch

### Report of Auditing Committee

The Treasurer's Books have been audited and found correct as of March 22, 1956.

Respectfully submitted,
E. S. Raun
John A. Lofgren
John H. Bigger, Chairman

### Report of the Resolutions Committee

**Resolution No. 1**

*Whereas*, the North Central Branch of the Entomological Society of America during its eleventh Annual Meeting has participated in a worthwhile program and has been satisfactorily housed and entertained,

*Be It Resolved*, that the members of this Branch extend their appreciation and commendation to the Program Committee, the Committee on Local Arrangements and the Officers of the Branch, and

*Be It Further Resolved*, that the members of this Branch extend their thanks to Purdue University for its hospitality and facilities.

**Resolution No. 2**

*Whereas*, the Program was published through the courtesy of the Midwest Farm Paper Unit comprised of The Farmer, St. Paul, Minnesota; The Nebraska Farmer, Lincoln, Nebraska; The Prairie Farmer, Chicago, Illinois; Wallace's Farmer & Iowa Homestead, Des Moines, Iowa; and the Wisconsin Agriculturist & Farmer, Racine, Wisconsin,

*Be It Resolved*, that the Branch thank these companies for their courtesy and that the Secretary be instructed to write them individually expressing our appreciation.

**Resolution No. 3**

*Whereas*, the Proceedings permanently record the information and discussions of this meeting and serve as a useful reference,

*Be It Resolved*, that an increase in size of type be considered for the Proceedings.

**Resolution No. 4**

*Whereas*, most of those who attend meetings of the North Central Branch of the E.S.A. have interest in several sections,

*Be It Resolved*, that the Program Committee explore the desirability of screening topic suggestions with the intent of having fewer sections scheduled concurrently, and that the concurrent sections be of as diverse interests as possible.

**Resolution No. 5**

*Whereas*, there is need for uniform interpretation and education concerning the "Miller Amendment",

*Be It Resolved*, that the North Central Branch of the E.S.A. request its Chairman to encourage concerned Federal personnel to release and distribute coordinated official interpretations relative to this matter.

**Resolution No. 6**

*Whereas*, these workers, J. Speed Rogers and Raymond C. Osborn, of the North Central Branch have passed to their reward during the past year,

*Be It Resolved*, that the Branch express its deepest sympathy to the families of these men.

Resolutions Committee
E. H. Fisher
O. H. Hammer
Ray L. Janes, Chairman

It was moved, seconded and passed that each of the resolutions be approved by the membership.

### Report of the Nominating Committee

The Nominating Committee reported that the newly elected officers of the Branch were:

*Chairman-elect*—Don Wilbur
*Secretary-treasurer*—Curtis Wingo
*Executive Committee Member-at-Large*—Roy Rings

Following the report of the Nominating Committee, Chairman Gunderson congratulated the new officers and introduced the new Chairman, C. E. Mickel.

### New Business

Chairman Mickel appointed the following Committees:

*Program Committee*—Herbert H. Harris, L. W. Quate, A. G. Peterson, Chairman
*Local Arrangements Committee*—George York, A. W. Busicky, E. T. Hibbs, Earl Raun, H. H. Dodge, Emil Gerdes, T. A. Brindley, Chairman
*Nominating Committee*—E. T. Hibbs, George Wagner, C. R. Neiswander, Chairman
*Resolutions Committee*—C. R. Weaver, John Wright, Philip C. Stone, Chairman
*Auditing Committee*—Philip H. Marvin, John A. Lofgren, Chairman
*Membership Committee*—H. B. Petty, H. C. Cox, Herbert Knutson, Chairman
*Sustaining Associates Committee*—B. O. Brayton, Wayne Colberg, Ellsworth Fisher, A. W. Busicky, Chairman

### 1957 Annual Meeting

Chairman Mickel announced that the 1957 meeting would be held at Des Moines, Iowa, on March 27, 28 and 29, 1957.

Respectfully submitted,
Roy W. Rings
Secretary-Treasurer

## GEORGIA COUNCIL OF ENTOMOLOGY

W. E. Blasingame, Director of the Georgia Department of Entomology, has been elected chairman of the newly formed Georgia Council of Entomology. G. G. Rohwer, Area Supervisor, Southeastern Region, Plant Pest Control Branch, U. S. Department of Agriculture, was elected vice-chairman.

The Georgia Council of Entomology will be made up of the head of each agency or field station carrying on entomological work in Georgia. Agencies represented on the Council are the University of Georgia, which includes teaching, Agricultural Extension Service and the State Experiment Stations; U. S. Public Health Service; Georgia Department of Public Health; Georgia Department of Entomology; U. S. Forest Service; and the U. S. Department of Agriculture.

This newly formed Council hopes to improve the economic condition and general welfare of the people of Georgia by accelerating the development and promotion of more effective control measures of insect pests.

To accomplish this objective the Council will promote the coordination of the various entomological activities being carried on within the state by stimulating activities in neglected fields of entomology, promoting expanded surveys, and by fostering the development of the profession of entomology and promoting a better understanding of the vast importance of this profession to the welfare of the citizens of Georgia.

The services of the Council will be immediately available to such agencies as Civilian Defense, Red Cross and others, especially during periods of public disaster, to deal with emergency outbreaks of insect pests or insect-borne diseases.

Those present at this recent organizational meeting held in Macon included E. D. Beck, USDA; W. F. Turner, USDA; H. O. Lund, University of Georgia; O. K. Fletcher, Georgia Department of Public Health; M. R. Osborn, USDA; O. I. Snapp, USDA; D. W. LaHue, USDA; C. R. Jordan, Agricultural Extension Service; C. M. Beckham, Georgia Experiment Station; G. G. Rohwer, USDA; K. D. Quarterman, USPHS; H. Laudani, USDA, and W. E. Blasingame, Georgia Department of Entomology.

The first regular meeting of the Georgia Council of Entomology will be held November 9, 1956 in Atlanta.

# ENTOMOLOGICAL DATA PROJECTED FOR INCLUSION IN THE HANDBOOK OF BIOLOGICAL DATA

Since 1949 the Division of Biology and Agriculture of the National Research Council, through its Committee on the Handbook of Biological Data, has been responsible for the production of a handbook of numerical data in the life sciences, intended to serve biologists as the International Critical Tables have served physical scientists. Supported by contributions from several Government agencies, the Office of the Handbook has solicited tabular data from specialists throughout the world, more than 17,000 of whom have participated in the work of selection, review, and authentication of data. The first edition of this Handbook will be ready for publication in June 1956 and will be issued by commercial publishers later in the year. The Handbook will contain data in all fields of biology. The following list shows the subjects that will be covered in entomology:

### Biochemistry

1. UTILIZATION OF NUTRIENTS. Utilization or requirement of 16 proteins, 20 amino acids, 35 carbohydrates, 45 lipids, 16 vitamins and related compounds, and 21 chemical elements. Quantitative and qualitative data for some 30 forms at various stages of development.
2. DIETS. Representative selection of diets for 7 forms which have been extensively studied in nutritional research. Amounts in grams per 100 grams of 44 compounds, including proteins, carbohydrates, lipids, vitamins, minerals, and other nutritional factors.
3. BODY FLUIDS. Specific gravity, osmotic pressure, gas content, inorganic constituents, total protein, protein N, total NPN, amino N, urea, and uric acid, pH, presence or nonpresence of free amino acids, total reducing substances: blood of some 20 forms. Also, data on constituents of some insect Ringer solutions.
4. COMPOSITION OF TISSUES. Qualitative and quantitative data on inorganic and organic constituents of whole animal, fat body, integument, mid gut, hind gut, and various other organs and tissues. Some 40 forms.
5. PIGMENTS. Types present, properties of these.
6. PARTITION OF EXCRETED NITROGEN. Allantoin N, amino acid N, ammonia N, creatinine N, purine N, urea N, uric acid N, and other N. Approximately 60 forms at various stages of development.

### Physiology

1. METABOLIC RATES. Body weight, temperature, metabolic rate (calories per hour, $O_2$ consumption), respiratory quotient. 16 forms.
2. RATES OF RESPIRATION. 40 forms at various stages of development.
3. EFFECTS OF TEMPERATURE. Relative humidity, temperature to which acclimated, temperature at which activity ceases (heat stupor, cold stupor), death from heat (temperature, time), death from cold (temperature, time), biological zero, temperature required for normal activity, preferred temperature, percent water in insect, undercooling point, rebound point. 50 forms at various stages of development.
4. OPTIMUM TEMPERATURES AND HUMIDITIES FOR PHYSIOLOGICAL FUNCTIONS. Stage, temperature, humidity, physiological process. 100 forms at various stages of development.
5. COMPARATIVE VISUAL SYSTEMS. Summary comparison of physiology and anatomy of major types of invertebrate and vertebrate eye.
6. RESPONSE TO LIGHT OF DIFFERENT WAVE LENGTHS. Group behavior of various insect orders to 10 wave length bands of light of equal physical intensities.
7. COMPARATIVE AUDITORY SYSTEMS. Summary comparison of physiology and anatomy of major types of invertebrate and vertebrate auditory systems.
8. UPPER HEARING LIMIT. Upper limit (kilocycles), technique. 12 forms.
9. MINIMAL CONCENTRATIONS OF SUBSTANCES STIMULATING CHEMORECEPTORS. End organ or region of body, substance (3-20 different substances for each form tested), medium, method, mean or median threshold concentration. 47 forms.
10. BIOLUMINESCENCE. Typical genera of groups that luminesce, type of light, luciferin-luciferase reaction, adenosine triphosphate reaction, inhibition by light, color of fluorescence, color and wave length of maximum emission of bioluminescence.

### Reproduction, Life Histories, and Parasitism

1. TYPES OF EGGS AND EMBRYOS: ANIMALS, BOTH VERTEBRATE AND INVERTEBRATE. Types of egg structure, cleavage, blastula, and gastrulation; mesoderm formation; character of coelome. 112 illustrative genera that have been studied embryologically, from porifera through man.
2. HATCHING PERIODS OF EGGS. 52 forms.
3. REPRODUCTION: INVERTEBRATES. Summary table showing type of fertilization, zygote development, larval development, adult sexuality. 88 representative genera.
4. RATES OF REPRODUCTION. Rate per unit time, length of effective time, total production. 10 forms of economic importance.
5. WEIGHTS. Wet weight, dry weight. 70 forms at various stages and ages of development.
6. LIFE HISTORY AND LIFE CYCLES. Type of metamorphosis; duration of egg stage; placement and number of eggs; duration of larval or nymph stage; duration and placement of pupa; duration of adult stage; hosts; stages causing what damage or benefit; overwintering stage; generation season. Numerous forms of representative and economic importance.
7. GENERAL CHARACTERISTICS AND HABITS. Distinguishing morphological characteristics, linear dimensions, geographical range, habitat, activity, and food. 100 common or representative forms. A highly selective table designed specifically for the abridged Handbook.
8. DORMANCY OF RESTING STAGES. Dormant stage, changes associated with diapause, duration, induction of diapause, cause of disappearance of diapause. 20 forms.
9. DISPERSION. Distance and number of animals dispersed, means of dispersal, formula. 60 forms.
10. INSECT VECTORS OF VIRUS DISEASES OF MAN, ANIMALS, AND PLANTS. Covered in series of parasitological tables.
11. INSECT HOSTS OF BACTERIAL, RICKETTSIAL, PROTOZOAN, AND HELMINTHIC PARASITES OF MAN AND SELECTED ANIMALS. Covered in series of parasitological tables.
12. INSECT SPECIES WHICH ARE POSSIBLE VECTORS OF MALARIA.
13. INSECT SPECIES WHICH ARE POSSIBLE VECTORS OF YELLOW FEVER.
14. INSECT PARASITES CAUSING DIRECT INJURY OR DISEASE IN HUMANS. Injury or disease, parasite, distribution, reservoir or source. 28 forms.
15. INSECT VENOMS. Distribution and morphology of form ejecting the venom, effect of venom

on man, experimental effects, treatment, quantity of solids per ejection, chemical composition, antivenin titers, various other analytical data. Data for most forms that have been studied have been considerably abridged for inclusion in the Handbook. *In extenso*, they will be included in the series on Toxicology.

**Genetics**

1. CHROMOSOME NUMBERS. Most forms which have been studied.
2. LINKAGE MAPS. Diagrams and tabular material for 12 species of *Drosophila*, the wasp *Habrobracon*, and the domestic silkworm (*Bombyx mori*).
3. MUTATION RATES, EFFECT OF VARIOUS PHYSICAL AND CHEMICAL AGENTS. *Drosophila, Habrobracon.*

**Insect Control**

1. INSECTICIDES. Physical and chemical properties, physiological action, method of application, insects especially affected, insects developing tolerance, acute mammalian toxicity. Exhaustive data for all insecticides in common use have been considerably abridged for inclusion in the Handbook. Space is reserved in the monograph on Toxicology for complete coverage.
2. INSECT ATTRACTANTS AND REPELLENTS. Data similar to above.
3. EFFECT OF RADIATIONS. Type of radiation, dose, $LD_{\infty}$, effect on mitosis and respiration. 12 forms.
4. INSECTIVOROUS PLANTS AND THEIR PREY.

## J. J. DAVIS

Professor Davis, who has been head of the Entomology Department, Purdue University, Lafayette, Indiana, since joining the staff in 1920 will retire July 1, 1956. J. J. was a charter member of the former Entomological Society of America, joining in 1906 and joined the American Association of Economic Entomologists in 1908. He is one of the select few who served as president of both these parent organizations—see page 10. He has been the mainstay of the Thomas Say Foundation since 1923. His entomological work in Indiana is well and widely known. Fifty years of outstanding work cannot be condensed in a paragraph but we give these highlights as a small gesture of our good wishes.

John V. Osmun has been named to head the department upon Professor Davis' retirement. We extend congratulations to Dr. Osmun. It is always pleasant to hear of one of our members advancing in the profession.

## NECROLOGY

BYARS, L. FREELAND. 47. Plant Quarantine Inspector, U. S. Department of Agriculture, Hoboken, N. J. at General Hospital, East Orange, N. J., April 14, 1956.

DEAN, GEORGE A. 83. Retired Head, Dept. of Entomology, Kansas State College. President of the American Association of Economic Entomologists 1921, President of the former Entomological Society of America, 1925. Emeritus member Entomological Society of America. At Manhattan, Kansas, April 23, 1956.

LIST, GEORGE M. 71. Emeritus Head, Department of Entomology, Colorado A. & M. College; Emeritus Chief Entomologist, Colorado Experiment Station. First Vice-President, American Association of Economic Entomologists 1938; Fellow in the former Entomological Society of America. At Fort Collins, Colorado, May 17, 1956.

SMITH, OWEN J. 46. Department of Biological Control, University of California at Riverside. At Riverside, California, April 2, 1956.

## MEMBERSHIP

The membership of this Society continues to grow. And well it should. Even a cursory reading of the population trend in the United States and in the world indicates that the control of insect pests and the husbanding of beneficial insects are of increasing importance and that the need for entomologists is and will be correlated directly therewith. This Society is the single national professional organization in the United States through which the advancement of the profession may be fostered.

Dr. Vannevar Bush, world renowned scientist, former president of the Carnegie Institution of Washington and a good friend of this Society made a recent appearance on television. One of his comments was of much interest to the writer. We cannot quote him exactly but the substance was that he expected the biological sciences to make strides in the next ten years comparable to those made by the physical sciences during the past decade. From where we sit that rings like a rendition from a hand writing on the wall.

The steady addition of new members is due to the efforts of many devoted individuals throughout this country and in other countries and to the yeoman work of not only the national *Committee on Membership*, as listed in the March 1956 BULLETIN, but also to Branch membership committees. The chairmen of these Branch committees, as reported to us as of this date, are as follows:

Cotton States Branch. A. L. Hamner—Box 223, State College, Miss.
Eastern Branch. A. C. Miller—Gulf Research and Development Co., Box 2038, Pittsburgh, Pennsylvania.
North Central Branch. Herbert Knutson—Department of Entomology, Kansas State College, Manhattan, Kansas
Pacific Branch. H. H. Keifer—1112 Swanston Drive, Sacramento, California.

The attention of new members signing up after July 1 should be called to the last paragraph of the application blank which specifies procedure regarding effective date of membership. Membership application blanks will be furnished upon request.

## COMMITTEE ON INSECT SURVEYS

The *Committee on Insect Surveys* held a two-day meeting at the South Bldg., U. S. Department of Agriculture, Washington, D. C., on May 9 and 10. Those in attendance were:

| | |
|---|---|
| Clyde A. Bower | R. W. Every |
| D. W. Hamilton | Kelvin Dorward |
| W. E. McCauley | P. W. Oman |
| J. A. Beal | C. G. Lincoln, *Chairman* |

Also present were J. I. Cowger, L. G. K. Iverson and R. B. Thrailkill, Survey Unit Supervisors in Mr. Dorward's Section.

A number of visitors were present at various sessions. The BULLETIN editor attended for a half day and was impressed with the activity of this Committee.

There was an error in our listing of this Committee in the March 1956 BULLETIN. The first name on the list should have read Clyde A. Bower. Our apologies have been extended to both Mr. Brewer and Mr. Bower. In addition Kelvin Dorward, Head, Economic Insect Survey Section, Plant Pest Control Branch, U. S. Dept. of Agriculture and P. W. Oman, Head, Insect Identification and Parasite Introduction Section, Entomology Research Branch, U. S. Department of Agriculture are ex-officio members of this Committee and should have been so included in the published listing.

# BOOK REVIEWS

THE GARDENER'S BUG BOOK, by Cynthia Westcott. Doubleday & Company, Inc., New York. 1956. 8½ x 5¾ inches. XXII & 579 pp. 94 line drawings and 36 full-page colored plates (102 pests). $7.50

The Gardener's Bug Book was first written in 1946. It is directed to the layman, home gardener, and beginning entomologist. The present volume is a complete handbook of garden pests and their control, rewritten to include a few pests omitted from the first edition, many new chemicals, and numerous changes in names. The listing of pests under hosts has been simplified. The author deserves special commendation for using the common names of insects appearing in the latest list adopted by the Entomological Society of America. The scientific names of insects are given but unfortunately the names of authors of species were omitted.

The book contains six chapters as follows: I. Insects in the Garden; II. Garden Chemicals; III. Spraying and Dusting; IV. Insects in Order; V. Garden Pests (and a Few Friends); VI. Host Plants and Their Pests. Also included are a comparatively brief glossary, a selected bibliography, and a good index of 57 pages. Information is given in non-technical language on approximately 1100 insects, mites, and other animal pests that commonly attack flowers, fruits, lawns, shrubs, trees, vegetables and vines with suggestions for their control in the home garden. This book is recommended for use as concise reference material to those in many walks of life, more especially to amateur gardeners and teachers of general science and agriculture, and various ramifications of it, in secondary schools.

F. W. POOS

BACTERIAL ANATOMY, SIXTH SYMPOSIUM OF THE SOCIETY FOR GENERAL MICROBIOLOGY, April, 1956. Edited by E. T. C. Spooner and B. A. D. Stocker. Published for the Society for General Microbiology by the Cambridge University Press, New York. IX + 360 pp., 21 tables, 65 text figures, 124 plate figures. $6.00.

This book consists of 15 papers discussed at the Sixth Symposium of the Society for General Microbiology held at the Royal Institution in London in April, 1956. The authors are all outstanding investigators in the field of bacterial anatomy and the editors are uniquely qualified by intimate knowledge to undertake the editing of such a group of papers.

The subject matter covered includes the cellular organization of bacteria, bacterial capsules, cell walls and flagella, the formation, characteristics and capabilities of bacterial protoplasts, organization of bacterial cytoplasm and bacterial inclusions. The laws of genetics as related to bacteria are discussed as well as the biochemical processes of bacteria and their nuclear apparatus as revealed by modern methods and apparatus. A number of the articles are chiefly concerned with discussions of chromosomes and chromatinic bodies in microorganisms.

The papers are not restricted to discussion and criticism but are also devoted in a large part to concrete descriptions of experimental work which would make this book an excellent working tool except for the unfortunate omission of an index. The lack of an index greatly reduces the practical value of the book.

The illustrations are excellent with adequate explanations adjacent to them. There are numerous phase-contrast photomicrographs and electron micrographs which appear to be particularly well done.

The lists of references included with the papers are unusually complete and the bibliography itself is worth the price of the volume. In this respect the book serves the excellent purpose of bringing together in one volume much of the pertinent literature concerning bacterial anatomy. The material covered is of interest to not only microbiologists but also to botanists, zoologists, biochemists and geneticists. Entomologists will be particularly interested in the article by C. L. Hannay, "Inclusions in Bacteria," which deals chiefly with insect pathogens.

The paper by DeLameter entitled "Bacterial Chromosomes and Their Mechanism of Division" is one of the most comprehensive in the book. In this article, the author discusses the general organization of the bacterial cell as shown by cytochemical tests, the organization of the nucleus, its mechanism of division and the structure of the chromosomes and includes detailed descriptions of experimental efforts on the problems of the synthesis of nuclear material and the dynamics of the nuclear mechanism. His summary of cytochemical tests presented in table form is particularly good.

In general, the excellent coverage of the subject of bacterial anatomy in the 15 papers in combination with the thorough review of the literature included in the individual papers recommends the book not only as one for immediate reading but also as a book to be kept close at hand for repeated reference.

A. S. MICHAEL

GUIDE TO THE LITERATURE OF THE ZOOLOGICAL SCIENCES, by Roger C. Smith, Professor of Entomology, Kansas State College of Agriculture and Applied Science. 5th edition. 4to., Flexible spiral binding, 135 pp., Minneapolis 15, Minn., Burgess Pub. Co., 1955. $2.75.

It is a pleasure to welcome the newly issued fifth revision of this well known and exceedingly useful aid to research workers. Each year the number of papers published in the biological sciences has increased until it now has attained truly tremendous proportions, and these become available at a much faster rate than they can be digested and efficiently utilized. Then too biological literature is scattered widely and appears not only in what are obviously biological journals, but also in a great many others as well. A former editor of Biological Abstracts not long ago estimated that biological articles of a research character easily number over 50,000 per year, and are published in some 6,000 serials. Obviously, under such conditions, help of some kind is an imperative need, and that is where a reference work of this type becomes of priceless value.

The very first step in starting an assignment is to find out what has been done already by others on it, or on related phases of the problem, in order to begin where others left off. Without proper balance and full cooperation between the laboratory and the library, there would be inexcusable waste annually in repeating old investigations. There would be little progress in science if each scientist depended wholly or even largely upon his own observations. Indeed it has been said with truth that the most original people are those who are able to make greatest use of the work of others. Only by becoming thoroughly saturated with all that has gone before, is real advancement possible through specific investigations. Then too the literature search and the background reading must continue as the work proceeds, hence, necessity for keeping up with these frequent revisions of "Guides" to the literature.

For the benefit of those research workers in entomology who may not be familiar with previous revisions of the book, some idea of the general scope of its subject matter may be gained by enumeration of its chapter headings, as follows: (1) Introduction and literature problems of the scientist; (2) The mechanics of the library and book classifications; (3) Bibliographies of the zoological sciences;